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"THE TRUE CAUSE OF THE POTATO DISEASE."

WE have long been satisfied that the potato disease is caused by a fungus. In fact, we think it will soon be proved that nine-tenths of all the maladies which affect trees, plants, grains, vegetables, &c., are caused by some of the numerous forms of fungus, either taken up by the roots, as is the case with smut in wheat and the pear-tree blight, or by growing on the leaves of the plant, like mildew on the grape, turnip, &c.

Many people appear to think that fungus is a spontaneous production; but such is not the case. It is produced from seed, or is propagated from the plant itself. There is no mystery about it, except so far as all vegetable growth is a mystery. The seeds are generally invisible to the naked eye, but they are none the less real, and it should be our aim to destroy them quite as much as to destroy the seeds of thistles and other noxious weeds. If this is not done our useful plants and vegetables will soon be over-run with these injurious parasitic plants. Smut in wheat is caused by a fungus attached to the seed, and this is effectually destroyed by "pickling" the seed wheat in chamber lye. Were it not for this practice, our wheat would soon be injured to an immense extent. What has been done in the case of wheat can be done in the case of other plants liable to the attacks of fungus when more is known in regard to this subject. But to return to the potato disease. In the *Genesee Farmer* for December, 1861, page 361, we published the following article:

"THE POTATO DISEASE.

"There can no longer be any doubt that this destructive malady is caused by a fungus.

"In the case of the grape-vine mildew the fungus merely creeps over the surface, and sulphur will destroy it. But unfortunately the potato fungus penetrates into the fissues of the plant, and all the remedies which have been suggested, such as removing the portions when diseased, drying the tubers, &c., must be considered as palliatives rather than preventives.

"The rapidity with which the disease spreads itself is shown in a recent German work *On the Cause and Treatment of the Potato Disease*, by Dr. DE BARY.* It is calculated that one square line of the under surface of the leaves is capable of producing 3,270 spores, and as each of them yields at least six zoospores (the number being sometimes as high as 16,) we have 19,620 reproductive bodies from that small space. The quantity, therefore, yielded by a single plant is enormous, and as the mycelium from the zoospores is capable of penetrating the cellular tissue in twelve hours, and when it is once established there and bursts through the breathing orifices or stomates of the leaves, it perfects it fruit in from fifteen to eighteen hours, and since the zoospores are perfected and ready to germinate in twenty-four hours from their being placed in water, it is scarcely possible to calculate the myriads of plants that may spread from a single center. As continued moisture is absolutely necessary for the germination of the spores and the production of the zoospores, it will at once be understood how rapidly the disease is propagated in wet weather, especially if it be warm, and what a check to the disease a dry season must be. It will also be apparent under what circumstances the zoospores will have readiest access to the tubers, and that those which are nearest the surface have a less chance of escaping than those which penetrate deeper into the soil.

"He shows that the disease is propagated from the tubers, and suggests that a spot of ground be specially selected for raising seed potatoes, where all the most likely means can be used to keep off the fungus, such as the instant removal of diseased leaves, and, if necessary, the removal of the stems, so that the zoospores can not be washed down to the tubers. A repetition of the process for a few years might banish the disease from the farm. A second hilling-up to cover the tubers more effectually, and to throw off the water containing the fungus spores, is also recommended."

Prof. S. W. JOHNSON, of Yale College, in a recent number of the *Country Gentleman*, pronounces this "*the true cause of the potato disease*," and furnishes some additional facts in regard to the experiments of DE BARY, KUHN, and other German botanists. He says:

* Die gegenwartig herrschende Kartoffelkrankheit, ihre Ursache, und ihre Verhutung. Von Dr. A. De Bary, Professor der Botanik zu Freiburg. Leipzig, 8vo., pp. 75, 1 tab. lith. 1861.

"Beyond all reasonable doubt, it is proved that the potato never rots without the fungus, and that it always rots with it. Planting the fungus on a sound potato develops the disease. Shielding the potato from the fungus prevents the disease. The rot starts where the fungus begins to grow. Each microscopic cell of the tuber becomes discolored and rotten, when, and only when, the fungus issues its branches into it, or into its immediate neighborhood. Constitution, tuber, propagation, aphides, salt, manures and weather have nothing to do with the disease, except as they favor or destroy the fungus.

"This is a grand result, if true. After carefully studying the evidence, it is hard to reject the doctrine. Let us examine the evidence and judge for ourselves.

"As is well known, the first indication of potato disease is the blight of the leaf. This comes on so suddenly, and often so peculiarly, as to point with the utmost directness to a fungus as its cause. That a fungus is developed on and in the blighted leaf, is perfectly understood, and has been from the first. To prove that this fungus invariably precedes, and is immediately followed by the blight, is the capital achievement lately made by Dr. SPEERSCHNEIDER, and confirmed by KUHN and DE BARY, botanists of Germany. These investigators have not merely looked at the blighted leaves and seen the fungus there, but have watched the fungus as it rapidly sends out its branches into the still fresh and healthy portions of the leaf, and literally devours them—appropriating their juices to its own nourishment, and leaving behind a disorganized and decayed mass as the track of its desolation. It is easy to see with the unaided eye, that the fungus travels over the potato leaf *before* the blight. If the observer carefully regards one of the brown blight-spots when the disease is spreading, he will see that at its borders, and extending over upon the still green leaf, is a forest of tiny mold-plants which cover the leaf with a greenish down. This is the potato fungus, the *Peronospora infestans*, as it is now botanically designated.

"The manner of growth of this plant must be known before one can understand its effects. It comes from a seed or *spore* of microscopic dimensions, a minute oval, somewhat flattened body which bears at either extremity a hair-like prolongature. These spores are produced to the number of 12—16, together, in a spore-sack at the extremity of a branch of the fungus. They are kept in a peculiar rapid motion by the vibration of the hair-like appendages, and when ripe they burst the spore-sack and are discharged. Their motion continues about half an hour, when it becomes slower, and shortly ceases. Then the spore begins to change its figure, the hairs disappear, and shortly a thread-like branch begins to protrude from its side; this rapidly increases, and if the spore is upon the potato plant, the branch, which is the seedling fungus, so to speak, penetrates the tissues of the potato—leaf, stem or tuber, as the case may be—and forthwith commences its parasitic life. The young fungus buds out in various directions, sending into the juices and cells of the potato its feeding branches or *mycelium;* while other, or fruit-branches, pass out into the atmosphere and reproduce spores with marvelous fecundity. The growth of the mother plant continues as long as it finds food and the requisite warmth and moisture. When the supplies existing in one place are exhausted, the plant dies in that spot; but the branches which had previously extended into the neighboring regions, continue to grow, so that the devastations of this fungus are like a fire which spreads in all directions wherever it finds fuel.

"Nothing can explain the fact that a field which yesterday was green and to all appearance healthy, to-day is black with blight, except the almost magical increase of this parasite. Nothing else can enable us to comprehend how a part of a field—a streak across it—is blighted, while the rest is undamaged.

"DE BARY has produced the blight on healthy potato leaves by sowing the spores and causing the 'fungus' to develop on them. To accomplish this it is only necessary to bring a spore in a droplet of water that is stationed on a bit of potato leaf, or to keep the spore and leaf in a sufficiently moist place for a few hours, to see with the microscope the fungus develop and the leaf turn yellow and finally brown, with all the symptoms that are observed when the disease is taken in the natural way.

"By these observations and experiments it appears proved beyond all cavil that the *Peronospora infestans* is the cause of the leaf blight, which is the invariable precursor of the rot of the tuber.

"The question next comes up: What has the fungus to do with the rot itself—with the potato disease proper?

"On this point the evidence is no less conclusive. Dr. DE BARY* describes the following simple experiment, which demonstrates that the tuber rot is the work of the fungus. A perfectly healthy potato is well washed and cut into halves. Each half is placed in a separate saucer, with the cut surface uppermost, and is covered with a tumbler or bell-glass, to protect it from dust and disturbance. A little pure water is placed in each saucer to keep the potato from drying away.

"Upon the cut surface of one of the pieces a number of spore-sacks of Peronospora are scattered, care being taken that none shall get across to the other piece. Both are now left to themselves, protected by the bell-glasses, and under the same conditions of temperature, moisture, &c. In ten or more days, according as the weather is warmer or cooler, the experimenter may observe that the half upon which the spores were sown begins to exhibit decided symptoms of the disease, while the other half remains perfectly healthy. The symptoms are precisely those which are always observed in the potato rot. The surface of the tuber first turns brown at the points where the spores were deposited; the discoloration extends outward from these spots in all directions, and in a few days the whole section is brown to the average depth of one-half to one line. The change proceeds from the edges of the cut surface under the skin of the tuber, until the whole mass is enveloped in a brown coating.

"The disease penetrates deeper and deeper into the tuber, until the latter is completely infected. If much moisture be present, the mass dissolves to

*In his work, "Die gegenwaertig herrschende Kartoffel-Krankheit; ihre Ursache und ihre Verhuetung."

a dark foul liquid; otherwise it dries away and shrivels together, as happens in the diseased potatoes in a dry cellar.

"On the section of the inoculated half, patches of mold appear as the discoloration commences. These extend rapidly, and when magnified are seen to be the fruit-bearing branches of the fungus. They break out also through the skin after the parts underlying have become brown by the ravages of the mycelium.

"With the other half of the potato, matters have gone on very differently. A discoloration is indeed noticeable at first; but it is slight, and is due to the formation of a new skin. In a short time the wound heals over, and thenceforth no further change happens, though months elapse, except such as would occur with sound uncut potatoes under the same circumstances.

"The same result follows when a potato is sown with spores and buried in moist earth. It is not needful that the spores be applied to a cut surface. The fungus when it begins to grow, will penetrate the potato skin without difficulty. About a week is required for the disease to become evident.

"These facts, which SPEERSCHNEIDER and DE BARY have repeatedly verified, and which any one may observe without difficulty, illustrate the manner in which the rot in the tuber is a consequence of the blight of the leaf. The spores which fall from the mature fungus that is on the leaves, are carried by rains down into the ground, and reach the tubers, provided the latter are not too deep lying, and thus infect them. If the soil of a field that is brown from blight be examined microscopically, there is no difficulty in finding spores among the particles of earth.

"A simple experiment furnishes proof that this is the actual process. DE BARY buried potatoes in sand from one-half to three inches deep, laid blighted potato tops on the surface of the sand, and sprinkled the whole moderately with water; in all cases the potatoes thus treated became diseased within eleven days. It is hardly necessary to state that to make these experiments conclusive, other potatoes were treated similarly in all respects, save that they were not treated with fungus spores, and that they invariably remained healthy.

"DE BARY describes the precautions which are needful to be observed in order to find the Peronospora in *every potato that is infected with the rot*. The difficulties in the microscopic examination of the diseased potato have prevented many skilled observers from tracing the disease to its true cause; but with proper care it is easy to demonstrate beyond all question that *where this fungus is, there is potato disease, and where the disease is, there is this fungus.*"

That this is "the true cause of the potato disease" we have no doubt. It appears that the rapidity with which the fungus propagates from the mycelium contained in the seed potato is at first quite slow, and this explains why the disease does not manifest itself until late in the season; but the following experiments of DE BARY show how favorable warm, moist weather is to the spread of the disease:

"In February three vigorous potato stocks grown in pots were placed in the immediate vicinity of some artificially infected shoots, on which Peronospora existed in a state of fructification. The plants were now frequently watered, the foliage being copiously besprinkled. In a short time the fungus established itself on the foliage of the previously healthy plants. They assumed precisely the appearance of field plants attacked by the disease in August. Leaf after leaf was affected, and in a few weeks the plants above ground were entirely destroyed, while nearly one hundred shoots of the same kind of potato planted at the same time and placed under similar circumstances, save that they were shielded from contact with the fungus, kept perfectly healthy, and remained so for months afterward."

ONIONS.—According to the London *Gardeners' Magazine*, charred rubbish and sand are capital materials for surfacing onion beds, as they keep the bulbs dry and warm while their roots are reveling in the rich soil below. Moisture at the base of the bulb for any length of time is most injurious to the onion; on the other hand, a dry heat at the surface is very beneficial, and it is the sun-heat alone which renders the Spanish onions so superior to the English in flavor and beauty of the bulbs. The hotter the season or the climate, the sweeter is the flavor of the onions; and the colder the season or the climate, the more pungent. Onions grown in the north of Europe are many degrees more fiery than those grown in the south. The hoe should never be used among onions. It does a deal of mischief, and if an onion is once loosened in the soil, it never makes much growth afterward. So, too, the bulbs should never be earthed up; they should stand wholly above ground, and have good depth of soil to root in. Sea-sand, salt and soot are good top-dressings for an onion bed, to be put on at least a week before sowing. The same writer recommends gas lime and deep trenching as the best preventives of the onion maggot.

LADY PIGOT'S SHORTHORNS.—One of the most enterprising breeders of Shorthorns in England is Lady PIGOT. The editor of the *Mark Lane Express*, in alluding to her "Victorias," did not get the matter exactly straight, and her Ladyship immediately wrote him the following note:

"SIR: In your last week's paper you confounded "Victoria" and "Victoria 35th." The former, for which I gave Mr. BARNES, of Ireland, 500 guineas, died of influenza, six days after calving her fourth calf, when barely seven years old, and was never shown in her life. The prize heifer "Victoria 35th," about which you uttered such gloomy prophecies during her show career of 1862, produced a very handsome heifer calf in November, and is milking capitally.—Faithfully yours, EMILY PIGOT, *Branches Park*."

CULTIVATION OF TARES AND VETCHES.

To those acquainted with European agriculture and the importance attached to the vetch, it is a matter of surprise that this best of all crops for soiling purposes has received so little attention in the United States. In Canada it is grown to some extent, but with us it is almost unknown.

The common vetch, (*Vicia sativa,*) is of two kinds—winter and spring. Like winter and spring wheat, they are not distinct varieties. They derive their characteristics simply from cultivation. The spring variety is more succulent and less hardy than the winter variety, and grows more rapidly; but if it is sown for a few years in the winter, it loses its rapid power of growth and becomes hardy. On the other hand, by sowing the winter

THE COMMON TARE OR VETCH (VICIA SATIVA.)

kind in the spring for a few consecutive seasons, it loses its hardiness and acquires the rapid growth and succulent character of the spring variety.

The vetch, like peas, beans and clover, belongs to the order *Leguminosæ*. In appearance it does not differ greatly from the pea—more especially of the sweet pea, cultivated in our gardens as flowers. The leaves are smaller and more numerous, and the leaf-stalk ends in a point or tendril, which always seeks some erect body to which it can cling for support. The pods are much smaller than the pea. We annex a drawing of the plant.

The principal use of the vetch is as a soiling crop for horses; but sheep, cattle and pigs eat them with great relish. There is no crop which will afford more milk than green vetches. On an English farm it is usual to sow both the winter and spring variety. Those sown in the fall can be cut in May and June, and the land afterwards sown to turnips. Those sown in the spring come later, and thus a succession of green crops can be kept up. When the land is in good condition and the season is favorable, an immense crop is obtained. It is usual to sow a little rye or oats with the vetches, their stiff straw serving as a support to the vetch. A peck of oats or rye, and six pecks of vetches, is about the proper quantity of seed per acre.

Like peas, beans and clover, the cultivation of vetches adds greatly to the fertility of the farm; and it is on this account, as well as on account of their nutritious qualities and great productiveness, that we have so frequently called the attention of our readers to this crop. If adapted to our climate, their introduction and extensive cultivation would prove of the greatest value to American agriculture.

PIG PROTECTORS.

THE following method of preventing sows from lying on their young has been given in the *Genesee Farmer*, but we find it so well described in the *Ohio Farmer* that we transfer it again to our columns:

"One of the troubles in a pig-nursery is the over-laying of the juvenile swine by a careless maternal hog. It is not at all agreeable to the proprietor of such stock, when he has progressed so far as to count his chickens after they are hatched, on visiting his pig-nursery in the morning, where he had left, the night before, a dozen of the cunning little juveniles, to find half of his pets flat and stiff as a cold johnny-cake, from having been lain upon by their mother. To secure the little porkers in their inalienable rights to life, liberty, and the pursuit of happiness, we have seen a plan of this sort: Against the walls of the apartment devoted to the pig bedroom, fix a plank like a shelf, about a foot wide and some eight or ten inches from the floor, so that when the female swine lies down to rest, or give sustenance to her little folks, there will be a space between her and the sides of the pen, which she can not occupy, and into which the pigs can retreat in case of a pressure. Sows over-lay pigs from their back, not from the side where the pigs get their dinner, and by this contrivance the pigs are shelved away from harm, and the mamma may roll about upon her bed with impunity, whereas, if she could press her brood to the wall, there would be a sorry chance for a pig-funeral, and many of the hopeful flock would never arrive to the years of discretion."

THE FEEDING VALUE OF STRAW.

It is truly surprising how apt men are to run into extremes. Scientific men and practical men, and men who are neither practical nor scientific; Doctors of Divinity and Doctors of Physic; charlatans and men of sound learning—all are liable to fall into this common error. In ethics, in religion, in politics, and even in agriculture, the world moves like the pendulum of a clock. We progress a little, but it is a Virginia rail-fence kind of progress. The history of agricultural science and practice is like the track of a sailing vessel on the ocean—first east and then west, occasionally directly forward, and not unfrequently retrograding, but still, on the whole, getting nearer the desired haven of—Truth. Look at the history of the ammoniacal and mineral manure theory, of thick and thin seeding, of fallows and no fallows, or of a score of other controverted subjects about which so much ink has been spilled during the last half century! The truth has been arrived at by a very zigzag road, but it has been found at last; and all well-informed readers have settled down to a middle course between the disputants.

The nutritious value of straw is now one of the controverted subjects of agricultural writers. It will prove no exception to the general rule. One class of writers will undervalue it, and another class will hold it in the most extravagant estimation. For many years, in England especially, it has been considered of comparatively little value except for litter, and it seems now as though straw would be placed high in the scale of nutritious foods. In fact, it is likely to be fully as much overrated as it has been undervalued.

We have already laid before our readers the results of a number of analyses of straw by Dr. Voelcker. (See *Genesee Farmer* for July, 1862, p. 201.) The article will well repay a second reading. A few days since, Prof. C. A. Cameron, of Dublin, communicated to the Royal Agricultural Society of Ireland the results of some analyses of Irish oat and wheat straw, which accord, in the main, with the previous analyses of Dr. Voelcker. They indicate, however, that the Irish straw is much more nutritious than that of Scotland, as analysed by Dr. Anderson, (Highland and Ag. Society's Journal, March, 1862.) They are, however, not quite as nutritious as the straws of England. Why there should be this difference is not stated, but we suppose it is owing to the fact that the English summers are warmer; and if this is the reason, our American straws would be still more nutritious, and this may account for the fact that American farmers place a higher value on straw as fodder for cattle and sheep than the English farmers.

Dr. Cameron is inclined, we think, to place too high a value on straw. He says:

"As compared with white turnips, the nutritive value of oat straw stands very high; for while the former contain but little more than 1 per cent. of flesh-formers, and less than 5 per cent. of fat-formers, the latter includes about 4 per cent. of flesh-formers, and 13 per cent. of fat-formers. Again, while the amount of woody fibre in turnips is only about 3 per cent., that substance constitutes no less than 60 per cent. of oat straw. In comparison with hay—taking into consideration the prices of both articles—oat straw also stands high.

"Woody fibre is as abundant a constituent of the straw of the cereals as starch is of their seeds, and if the two substances were equally digestible, straw would be a very valuable food—superior even to the potato. At one time it was the general belief that woody fibre was incapable of contributing in the slightest degree to the nutrition of animals, but the results of recent investigations prove that it is, to a certain extent, digestible. In the summer of 1859 two German chemists, Stœckhardt and Sussdorf, made a series of experiments, with a view of ascertaining whether or not the cellulose of the food of the sheep is assimilated by that animal. The results of this inquiry are of importance, seeing that they clearly prove that even the hardest kinds of cellulose are capable of being assimilated by the ruminants. The animals selected were two wethers, aged respectively five and six years. They were fed—1stly, upon hay alone; 2ndly, upon hay and rye straw; 3rdly, upon hay and the sawdust of poplar wood, which had been exhausted with lye. (To induce the sheep to eat the sawdust, it was found necessary to mix through it some rye-bran and a little salt.) 4thly, hay and pine wood sawdust, to which was added bran and salt; fifthly, spruce sawdust, bran and salt; sixthly, hay, pulp of linen rags (from the paper-maker), and bran. The experiments were carried on from July until November, excepting a short time, during which the animals were turned out on pasture land, to recover from the injurious effects of the fifth series of experiments—produced probably by the resin of the spruce. The animals, together with their food, drink and egesta, were weighed daily. The amount of cellulose in the food was determined, and the proportion of that substance in the egesta was also ascertained; and as there was a considerable discrepancy between the two amounts, it was evident that the difference represented the weight of the cellulose assimilated by the animals. In this way it was ascertained that from 60 to 70 per cent. of the cellulose of hay, 40 to 60 per cent. of the cellulose of straw, 45 to 50 per cent. of the cellulose of the poplar wood, 30 to 40 per cent. of the cellulose of pine, and 80 per cent. of the cellulose of the paper pulp was digested.

"In stating the results of his analyses of the straws, Prof. Voelcker sets down as 'digestible' that portion of the cellulose which he found to be soluble in dilute acids and alkaline solutions; but

he admits that the solvents in the stomach might dissolve a larger amount. The results of the experiments of STŒCKHARDT and SUSSDORF prove that 80 per cent. of the cellulose of paper (the altered fibre of flax) is assimilable, and it is, therefore, not unreasonable to infer that the cellulose of a more palatable substance than paper might be altogether digestible.

"The facts which I have adduced clearly prove that the straws of the cereals possess a far higher nutritive power than is commonly ascribed to them; that when properly harvested they contain from 20 to 40 per cent. of undoubted nutriment; and lastly, that it is highly probable that their so-called indigestible woody fibre is to a great extent assimilable.

"The composition of cellulose is nearly, if not quite, identical with that of starch, and it may, therefore, be assumed to be equal in nutritive power to that substance—that is, it will, if assimilated, be converted into four-tenths of its weight of fat. Now, as cellulouse forms from six-tenths to eight-tenths of the weight of straws, it is evident that if the whole of this substance were digestible, straws would be an exceedingly valuable fattening food. When straw, in an unprepared state is consumed, there is no doubt but that a large proportion of its cellulose remains unappropriated—nay, more, it is equally certain that the hard woody fibre protects, by enveloping them, the soluble and easily digested constituents of the straw, from the action of the *gastric juice*. I would, therefore, recommend that straw should be either cooked or fermented before being made use of: in either of these states its constituents are far more digestible that when the straw is merely cut, or even when it is reduced to chaff. An excellent mode of treating straw is to reduce it to chaff, subject to the action of steam, and mix it with roots and oil-cake or corn. A better and a cheaper plan is to mix the straw with sliced roots, moisten the mass with water, and allow it to remain until a slight fermentation has set in. This process effectually softens and disintregates, so to speak, woody fibre, and sets free the stores of nutritious matters which it envelops. Some farmers who hold straw in high estimation prefer giving it just as it comes from the field; they base this practice on the belief that ruminantes require a bulky and solid food, and that their digestive powers are quite sufficient to effect the solution of all the useful constituents of straw. It may be quite true that cattle, as asserted, can extract more nutriment out of straw than horses can, but that merely proves the greater power of their digestive organs. No doubt, the food of the ruminants should be bulky; but I am quite sure that cooked or fermented straw is sufficiently so to satisfy the desire of those animals for quantity in their food.

"So far as I can learn, all the carefully-conducted feeding experiments to test the value of straw which have been made have yielded results highly favorable to that article."

Mr. LAWES is making some experiments which will probably throw much light on the question as to how far cellulose or woody fibre is digestible, and determine the nutritious properties of straw. We shall look with much interest for the result.

AMERICAN CHEESE IN ENGLAND.

LAST year we exported to England 735,854 boxes of American cheese, or 51,720,000 pounds!

One would suppose that this enormous importation of cheese would have a depressing influence on the English market; but such does not appear to be the case. Messrs. J. & E. CORDEROY & Co., of London, in their annual review of the cheese trade, published in the *Mark Lane Express*, write as follows:

"In taking a review of the course of the cheese trade during the past year, we have to remark not only increased production, but a larger demand. Notwithstanding the immense importations of American cheese, and an improved supply from Scotland, stocks have only occasionally proved inconveniently large, and prices of really good qualities of Cheshire cheese have been well sustained. The increased population of London is doubtless the chief reason for increased consumption.

"At the commencement of the past year the stocks of Cheshire cheese were heavy, and the bulk was common in quality. This, with large supplies of American, made the price of ordinary descriptions of English cheese 5s. to 8s. per cwt. lower than at present. Really fine cheese was also rather cheaper. As the season advanced, the demand for best qualities improved, and somewhat higher rates were secured. Inferior sorts, and cheese out of condition, remained at low quotations—say at 38s. to 46s. per cwt.

"In the month of June a further advance on fine cheese was obtained; but common descriptions remained without change in value. In July, when new cheese began to arrive, the stocks of old were quite equal to former years; fine old, however, was scarce, and upwards of 80s. was made for very choice dairies. New American cheese arrived, but, being ordinary and tender, sold at low rates."

The freight on cheese and butter, *in proportion to value*, is less, with the exception of cotton and tobacco, than on any other production of American agriculture; and there is no reason why American cheese should not be exported in vastly greater quantity. One thing is certain: if it will pay to send wheat and corn to England, it will pay much more to send butter and cheese, because the freight, in proportion to value, is not one-half as great.

But why need we send such poor cheese to England? Why should we be reminded every week, as we take up the *Mark Lane Express*, or the *Irish Farmers' Gazette*, that American cheese, butter and bacon, command far less prices than the Cheshire or the Irish? We have this moment turned to the last number of the *Mark Lane Express*, and there are the quotations, as usual:

CHEESE, PER CWT.

Cheshire,	56s. to 72s.
Double Gloucester,	56s. to 68s.
Cheddar,	60s. to 70s.
American,	40s. to 56s.

How do American cheese-makers like the fig

ures? Every thing that mechanical ingenuity can do for our cheese-makers has been done. Our cheese-vats and presses are the best in the world. Why should our cheeses be the poorest? It is JOHN BULL prejudice, you say. We do not believe it; but admitting that it is so, would it not be the part of wisdom to adapt our process of manufacture to the English market? As long as we continue to export cheese, the price it brings in the English market will regulate the price in America. If Cheshire cheese sells in London for 56s. to 75s. per cwt. (12c. to 16c. per lb.), and American at only 40s. to 54s. (8½c. to 11½c. per lb.), American farmers not only lose four cents per pound on all they export, but also on all the cheese they sell in this country. According to the last census, the Northern District of the State of New York produced during the year ending June 1, 1860, 48,392,006 lbs. of cheese. If the cheese we export commanded as high a price as the Cheshire, or an average of four cents per pound more than at present, it would put into the pockets of the farmers in our northern counties $1,935,680.24 *in gold;* and it must be remembered that this additional sum is *all profit.*

Can not we make as good cheese as the English? Is there anything in our soil or climate that prevents; or is it merely the want of proper care? We have given the subject considerable attention, and have come to the conclusion that we *can* make just as good cheese in this State as in England. Our climate is not quite as favorable, but this can be rectified by good dairy-houses. On some of the cheese farms in the northern counties of this State, the dairy-houses, and all the appliances of cheese-making, leave nothing to be desired. There are none better in the world. In too many cases, however, the dairy-houses are quite defective, and the cheese-makers have not the means of guarding against those extremes of temperature which so seriously affect such a sensitive compound as milk. Sometime ago a correspondent of the *Genesee Farmer*, a butter-maker in one of the southern counties, complained that "the good sold the bad." This may sometimes be the case; but as a general rule the *bad* injures the sale and reduces the price of the *good*. It is so especially in regard to our cheese sent to England. A considerable amount of our cheese reaches there in a damaged condition, and this injures the reputation of *all* American cheese, good and bad. While, therefore, many of our dairymen have the best of houses, and employ a good process of manufacture, they do not get a full recompense for their care and skill, because of the imperfect methods adopted by their neighbors.

In regard to the soil. There is no peculiarity in American soil. It is not *destitute* of any element necessary to produce the best of grass. It is possible, however, that some of these elements are somewhat *deficient*. There may not be enough of them in the soil to produce grass of the highest quality. We think that this is to some extent the case. Many of the pastures in the dairy districts of this State are of the poorest description. After looking at the rich pastures of Cheshire, they present rather a sorry appearance. We have thought, however, that this affected the quantity rather than the *quality* of the milk. It would undoubtedly be greatly to the advantage of our dairymen to improve the quality and productiveness of their pastures, and also to feed their cows better in the winter, as well as in the spring and fall; but we do not think that this would have any material influence on the *quality* of their cheese. We think that this is affected more by the processes of manufacture than by the breed of cows or the system of feeding. Dr. VOELCKER, Chemist to the Royal Agricultural Society, in his essay on cheese-making, after giving several analyses of American cheese, comes to the conclusion "that *good materials* are even more thoroughly spoiled on the other side of the Atlantic than in England."

We think this is true. Our milk is good, but it is too often spoiled in the process of cheese-making; and it is even more frequently spoiled after the cheeses are made. In fact, the one great error of American cheese-makers is in selling their cheeses before they are ripe. A cheese needs to ripen just as much as an apple. A Northern Spy, when picked from the tree in October, gives very little evidence of those delicious qualities which it possesses in January and February, after it has been properly ripened. It is so with a good cheese. No matter how rich the materials, or how well it has been made, if it is not properly ripened it is of very inferior quality. Many of our farmers say they find it more profitable to sell their cheese in a green state than keep it untill ready for the table; but in this we think they are mistaken—at all events, this practice seriously injures the quality and reputation of American cheese, and the farmers are ultimately the greatest sufferers.

In this city we have frequently tried in vain to find a really good cheese. They are rich enough, but they lack that flavor which belongs to a well-made and properly-ripened cheese. Almost invariably we have found that the whey had not been

thoroughly pressed out of them. In Cheshire, where "scalding the curd" is seldom practiced, the cheeses are pressed for at least three or four days. Here they are seldom if ever pressed longer than twenty-four hours. Scalding the curd is to a certain extent equivalent to pressing, but we think if we should scald less and press more our cheeses would be none the worse for it.

WESTERN NEW YORK WOOL-GROWERS' CONVENTION.

About the middle of March, H. T. Brooks, Elisha Harmon, John Gilmore and A. McPherson, Jr., issued a card requesting the wool-growers of Western New York to meet in the Court-houses in their respective counties and elect delegates, one from each town, to attend a Wool-growers' Convention to meet in this city, to take into consideration the propriety of "*shearing without washing sheep.*" Wool dealers and manufacturers were also invited to attend.

The Convention met in this city April 2d. There was a good attendance of farmers and wool buyers, but the manufacturers were not represented.

The Hon. Elisha Harmon was appointed President, and he called upon H. T. Brooks to state the object of the meeting.

Mr. Brooks said the Convention had met to discuss the advantages and disadvantages of washing sheep. For his own part, he had always washed his sheep; but he found that the nearer he could come to *not* washing them the more profitable it was! He had that morning been talking with one of the largest wool buyers in the State, and he stated that Western New York was a poor section to buy wool in. They paid much more for Ohio and Virginia wool. Mr. Brooks thought that the *fiber* of Western New York wool was worth more per pound than that of Ohio. He doubted if our wool could be dispensed with. If a few farmers should bring their wool to market in an unwashed condition, a serious deduction would have to be submitted to; but "union is strength," and if the practice was universal the buyers would have to yield. He believed that the sheep were seriously injured by washing. Last year he washed one hundred and fifty sheep in June, on a warm morning, but before night the wind had changed and a cold rain set in. In a week the sheep had every indication of having taken a severe cold, and some of them died. He thought sheep should be sheared about the first of June. Formerly, when our sheep were bare-bellied and thin-wooled, it did not matter when they were sheared—they would hardly know whether their wool was off or on; but now, when the wool is three or four inches long, and so thick that you could not tell where to put in another fibre, the case was different. If such sheep were left unsheared until July, they were seriously injured. If gentlemen would wear a heavy overcoat on a hot day in July, they would then be prepared to say what the effect would be of compelling their sheep to carry a heavy coat of wool late in the season. Our weather seemed to get colder. Washing sheep was a disagreeable job—we had to dispense with the "whisky jug" of former days. If we waited until the water got warm, it would be well into July,—almost time for frost! He thought we should dispense with washing. Shear about the first of June, and be careful to protect the sheep for three or four weeks after they are sheared. He wished to hear from others. He believed Mr. Whitney, of Clarkson, had been in the habit of shearing without washing, and he would like to hear how he succeeded in selling his wool.

Mr. Whitney said he sheared the fore part of May—before turning the sheep to pasture. He keeps his sheep well housed and clean, and the buyers could not tell whether the wool was washed or not! [We could not hear the whole of Mr. Whitney's remarks.]

The President said our sheep were but poorly washed, but he supposed that if they were not washed at all we should have to submit to a deduction in price. It had been said that the wools of Western New York waste 25 to 50 per cent. in cleaning by the manufacturers. The question is, What would be the difference between the present shrinkage and what it would be if not washed at all and what the manufacturers would allow? We had the credit of sending wool to market in as bad a condition as any other section in the United States. Some farmers had taken considerable pains in preparing their wool for market. He thought he had—but he was getting discouraged. There was a wrong somewhere.

Mr. McVean was desirous of ascertaining the experience of wool-growers in other States in regard to washing or not washing, and asked Mr. Moore, of the *Rural New-Yorker*, for information.

Mr. Moore had none to give. He believed in Vermont they did not wash at all!

The President said the difficulty was to bring the wool to an exact standard. Some washed thoroughly, and others only a little, and buyers did not make sufficient difference. He had lost sheep by cold storms after shearing in June and July

The object of this meeting was to see if we could not produce a greater uniformity.

A gentleman whose name we did not learn, had had some experience in shearing without washing. Last year he sheared two hundred sheep, April 20th, without washing, and the buyer took the wool at the same price as that which had been washed. He thought if sheep were sheared unwashed, from the 20th of April to the 10th of May, the wool would have no more grease in it than that from washed sheep sheared from the 20th of June to the 10th of July. The sheep would stand shearing in April better than in July.

A committee having been appointed to draft resolutions, their Chairman, H. T. Brooks, reported as follows:

Resolved, That the practice of washing sheep should be abolished; because—

1st. It permits of early shearing, which secures a greater quantity of wool and longer staple, and a better condition of sheep and lambs throughout the year.

2d. It would be conducive to the interests of the grower and the manufacturer, inasmuch as it would necessitate the purchase of wool upon its merits, and abolish the unjust practice of purchasing at average rates.

3d. Of the exposure to contageous diseases, such as scab, foot-rot, &c.

4th. That it is an expensive, unpleasant job, and unhealthy to man and sheep. That the loss resulting from sheep taking cold, over-run in yards, drowning, and other accidents and injuries incidental to washing, is often very great, and that the manufacturer can cleanse the wool cheaper than the grower.

5th. That it is the duty, as it is for the interest of wool growers, to put their unwashed wool in good condition for the buyer by thoroughly tagging their sheep, by keeping their sheds and yards well littered during the fodderring season, and by throwing out all filth that can be separated from the wool.

6th. As some lots of wool are more gross and gummy than others, the buyer should not decide on any uniform rate of deduction for shrinkage, but each lot should be sold on its own merits, according to its quality and condition.

Lastly. As generally practiced washing is little or no improvement to the fleece in cleanliness or condition.

The first resolution was then taken up.

H. T. Brooks thought we got more wool by early shearing.

A gentleman from Livingston county, whose name we did not hear, asked if non-washing and early shearing was not the practice of those wishing to show their sheep. If sheep were housed, &c., he thought it would do to shear early, but for the mass of farmers it would not pay.

Mr. Whitney said that for the first five days after shearing sheep were very susceptible to cold.

Mr. McPherson thought we could produce more wool by shearing early—say first of May. Wool grows very little in warm weather. When sheared late the hot sun blisters the sheeps' backs; if sheared early, the wool will be an inch longer. He had tried the experiment for ten years. The wool was one-third longer.

Mr. Townsend thought there was great advantage in shearing early. Last year he sheared some on the 1st of May and others on the 1st of July: the former, unwashed, did well; the latter fell away and the wool was not so good.

Mr. King asked if those sheared early were not bucks? How about the ewes? You can not shear them in the lambing season. Tub-washed wool always sells the highest. It had been stated that buyers could not tell a washed from an unwashed fleece. This was a great mistake. He would advise farmers to wash their sheep, and prepare their wool in the best manner They would certainly, in the end, reap great advantages from so doing.

Mr. Wiley thought most of the speakers were men engaged in breeding fancy sheep. He believed the majority of wool-growers would still find it to their interest to wash their sheep—and wash them well. Last year there was a great demand for wool, and buyers were so anxious to purchase that they made little distinction. He thought if it should become the common practice to shear without washing the common farmers would be the losers.

Mr. Terrell, of Monroe, had resided all his life in Vermont, until three years ago, when he removed to this section and brought his sheep with him. Formerly he was in favor of washing; but he was now tired of it. He housed his sheep, and was in favor of shearing early. He gets a longer staple. It had been urged as an objection to the practice that you could not shear in the lambing season. He preferred to have his lambs come early. Had twenty lambs now (April 2.) They do better in sheds in April than in the open field in May and June.

Mr. Bristol, of Wyoming, an extensive wool dealer, as well as a large wool-grower, said that we could not get as much for Western New York wool as for Ohio by 15 cents per pound! The reason was we were getting too smart! The dealers will not buy our wool until Ohio and Michigan is all gone, and Vermont was last of all. He sent some Western New York and some Ohio wool to New York. The former was just as good in staple as the latter, but it would not bring as much by 10 cents per pound—there was so much dirt in it. He has now on hand some Wyoming county wool that was bought as washed wool that would shrink 50 per cent.! He shears from 1,000 to 2,000 sheep, and he gave it as his opinion that farmers would find it to their interest to wash their sheep well, and prepare their wool for market in the best man-

ner. He shears about the first of June. He gets more for wool than those of his neighbors who do not take as much pains with it.

The President asked Mr. BRISTOL what he thought would be the result if Western New York sheep were taken to Ohio and kept there for a few years. Would not the wool grown in Ohio be worth more?

Mr. BRISTOL thought it was in the *men*, and not in the soil and climate.

Mr. WHITAKER, of Yates, indignantly denied that farmers were dishonest.

Mr. BRISTOL had not made such a charge. He would ask Mr. W., however, if he thought it was honest to bind up the tags and to pick up rubbish from the barn-yard and conceal it in the wool, tying up the whole with heavy hemp twine!

It was then proposed to take a vote, and the President requested all in favor of the resolutions to stand up. Eight members stood up. Those opposed were then asked to stand up, and about the same number arose in their seats! The President did not say whether the resolutions were passed or not.

The first resolution was the only one discussed. A resolution was offered and passed to the effect that wool buyers ought not to pay as much for poor wool as for good!

The members seemed impatient to leave. A resolution was offered to appoint a committee of one in each county in Western New York to ascertain the names of those who were willing to dispense with washing and those who were not, and to have them published. The resolution was declared carried. Members were constantly leaving the room. There seemed to be a general rush for the door. They were requested to remain a moment. A motion was made to appoint ELISHA HARMON, D. D. T. MOORE and A. MCPHERSON Jr., a committee to correspond with manufacturers and ascertain what they would pay for unwashed as compared with washed wool. It received three votes, and was declared carried. And thus ended the Western New York Wool Growers' Convention. When we left, the Secretaries were appointing the committee of one in each county.

HIGH PRICE OF SHEEP.—The *American Stock Journal* says:

"The excitement in stock sheep seems to be running high all over the country, and sheep of all kinds are bringing almost fabulous prices. EDWIN HAMMOND, of Middlebury, Vt., was recently offered twenty thousand dollars for fifty of his best sheep—four hundred a head!—and the offer was declined."

CULTIVATION OF BARLEY.

BARLEY should be sown as early as the ground can be got into good condition. Fine tillth is particularly needed. It seldom does well on sod land. If corn has been planted on an old rich sod and well cultivated, it is one of the best crops to precede barley. In England barley always follows a turnip crop, and there is nothing better, provided, as is almost invariably the case in England, the turnips are eaten off by sheep on the land. The droppings of the sheep enrich the soil, and a large crop of barley is the result.

Barley likes a warm, active soil, such as a gravely loam. It does not do as well on low, swampy land as oats; neither does it do as well on heavy clays as wheat. On a rather heavy loam, when *thoroughly* pulverized, large crops have been grown—as, for instance, when barley has been sown on heavy land summer-fallowed the previous season. As a rule, however, a rather light loam is the favorite soil of the barley crop.

As we have before said, barley requires good tilth. This is essential—far more so than for wheat or oats. It is also important to have the soil in good condition. The barley crop matures early; rapid growth, therefore, is essential. The roots, too, do not extend nearly as far as wheat. For these reasons a rich soil—one abounding in the element of plant-food in an available condition, is indispensable for a large crop of barley. Early sowing, so as to lengthen the season as much as possible, is also important. With this object in view, some good farmers in this section plow the land in the fall, and then sow the seed in the spring without again plowing. In this way they can get the crop in by the middle of April. Unless this course is adopted, it is not often that we can, in this section, get the soil in good condition for sowing before the last of April or first of May.

Two bushels of seed per acre is about the rule in this section; but two and a half to three bushels are more frequently sown by our most successful barley-growers. In England, where clover is almost invariably sown with the barley crop, it is usual to roll the land when the barley is just out of the ground. This is done, not so much because it is thought to help the barley, as for the benefit of the clover, (which likes a firm seed-bed,) and to make the land smooth to facilitate gathering the barley at harvest time. The same practice is common in this section, but if the land is fine and mellow, and is not seeded with clover, the rolling is not essential.

If the land is rich and clean, wheat may follow the barley crop, especially if a light dressing of manure can be applied either at the time of sowing or on the surface after the wheat is sown; otherwise wheat after barley is not a desirable rotation. It would be better to seed the land with clover and pasture it a year before sowing the wheat.

HOW TAR IS MADE.

Tar is derived principally from the pine forests of the Southern States, and since the breaking out of the rebellion has doubled and trebled in price. The question has been asked how it is made. Solon Robinson, who has traveled much in the South, and who doubtless speaks from actual observation, says:

"They process is very simple. Tar-producing pine wood is cut and set up just as it is for making charcoal, in a conical pile, about the size of a low, round-top hay-stack, of two tuns, covered with fine straw, or leaves, or with old hay or straw, or reversed grass-sods, over which earth to the depth of a foot is placed and well beaten down. The pile is fired and burned just as it would be for charcoal, and will make coal and tar by the same process; that is, by a slow combustion, with only just air enough to keep the fire alive. In building the pile, a well-hole is left in the center, into which burning brands are thrown and the hole filled with small dry wood, which is allowed to kindle and is then covered over, the combustion and ignition of the pile being kept up by means of vent-holes on the sides. The spot selected for the pile should be upon a hill-side, and all the loose earth removed, so as to have a hard smooth bottom, with a descent of one foot in ten, or greater, with a channel on the lower side to convey the tar into a trough, leading it direct to the barrels. Practice alone can regulate the proper degree of heat at the right time to produce the greatest result, and at the best the result is not such as would satisfy a Yankee farmer of any enterprise, at any but a time like the present when the natural course of trade is interrupted, and the price of tar much higher than usual."

Plowing—Loss of Time in Turning.—In some experiments made by the Earl of Mar, it appears that the loss of time, in a day of ten hours, in plowing a field 274 yards long, with a furrow 10 inches wide, was 1 hour and 22 minutes; in plowing a field 200 yards long, a loss of 2 hours and 1 minute; in a field 149 yards long, a loss of 2 hours and 44 minutes; and in a field 78 yards long, a loss of 5 hours and 11 minutes. In other words, in plowing a field only 78 yards long 5 hours and 11 minutes are occupied in turning, and only 4 hours and 49 minutes in actual plowing—a loss of more than half. Of course, the loss of time would depend very much on the activity and skill of the plowman in turning, but even if the horses never stop at all in turning the loss is greater than is generally imagined.

INDIAN CORN.

The Indian legend of the gift of corn to the world, as told by Longfellow in *The Song of Hiawatha*, is exquisitely beautiful. The red men believed that this great American cereal was a miraculous gift from Heaven. Three times there appeared to Hiawatha, the Indian saint and hero a youth from the skies

> Dressed in garments green and yellow,
> Sinking through the purple twilight,
> Through the splendor of the sunset;
> Plumes of green bent o'er his forehead,
> And his hair was soft and golden.

This celestial visitor, calling himself "Mondamin, invited Hiawatha to wrestle with him, and charged him, if victorious, to strip the gay garments from his body, and bury him where the rain and sun might fall upon his grave. Three times they wrestled:

> When the sun through heaven descending,
> Like a red and burning cinder
> From the hearth of the Great Spirit,
> Fell into the western waters,
> Came Mondamin for the trial,
> For the strife with Hiawatha;
> Came as silent as the dew comes,
> From the empty air appearing,
> Into empty air returning,
> Taking shape when earth it touches,
> But invisible to all men
> In its coming and its going.

The third time Hiawatha was victorious. He stripped the gay garments from his celestial adversary, buried him as he was directed to do, and watched patiently by his grave.

> Till at length a small green feather
> From the earth shot slowly upward,
> Then another and another.
> And before the summer ended
> Stood the maize in all its beauty,
> With its shining robes about it,
> And its long, soft, yellow tresses;
> And in rapture Hiawatha
> Cried aloud, "It is Mondamin!
> Yes, the friend of man, Mondamin!"
>
> * * * * *
>
> And still later, when the autumn
> Changed the long green leaf to yellow,
> And the soft and juicy kernels
> Grew like wampum, hard and yellow,
> Then the ripened ears he gathered,
> Stripped the withered husks from off them,
> As he once had stripped the wrestler,
> Gave the first feast of Mondamin,
> And made known unto the people
> This new gift of the Great Spirit.

A Prolific Sheep.—The Wicklow (Ireland) *Newsletter* says:

"Mr. John Chapman, of Wicklow, is the fortunate possessor of an ewe that on Monday last yeaned the extraordinary number of four lambs; on each of the three preceding years she had three lambs; and two lambs each for the three years preceding those; the ewe having in all nineteen lambs, she not being yet seven years old. It is remarkable that some of her lambs are equally prolific, having three lambs at a time."

HORN DISTEMPER—HOLLOW HORN, &C.

Sometimes, Messrs. Editors, human subjects are better off because no physician can be found for them. People who know nothing of medicine may refrain from interference and the patient may recover more quickly under the let-alone system, than if treated by a regular practitioner. Still no one likes to live out of the reach of medical aid. Our domestic animals, however, are generally without the benefit of medical treatment when sick, and worse than this, every one seems to think himself competent to doctor the poor beasts without reflecting that there is the same danger in treating animals ignorantly as in treating human beings ignorantly, although, of course, not the same responsibility, and the very people who maintain that "Dr. Let-Alone" is a good enough doctor in many cases for human subjects, seem to be very much afraid of him when a beast is found to be ailing. Doubtless every farmer should learn what he can of veterinary practice. We have in this country few regularly educated veterinary surgeons, and in most cases it would cost more than the value of the sick animal to procure their services. The farmer is therefore thrown on his own resources, and should have by him the best books that he can buy—study them carefully, and when a beast is taken ill, watch the symptoms closely, and if he has no practitioner near him, advise with his books, and act as he would if he found himself alone with a sick child or a sick friend, useing what light he has, and above all, the light of common sense, remembering always that the first thing to be done is to find out, if possible, what is the matter, and always before administering a remedy, asking himself what he proposes to effect by it. If he cannot make up his mind what disease he is to treat, he can at any rate treat the symptoms if alarming, and if not, he has always "Dr. Let-Alone," and "Dr. Nurse," and "Dr. Nourishment," and "Dr. Diet," and "Dr. Starvation," a large but not a formidable army of M. D.'s to fall back upon. All of them, too, very good in their way. If he has more confidence in a neighbor's experience and judgment than his own, let him at least find out what his neighbor proposes to effect by his treatment and by his prescriptions; let him ask a reason for the treatment proposed, and *get a good reason* before he allows any experiments to be tried; let him beware of drugs and nasty messes and cruel external applications, that must do harm if they are not imperatively called for; and if he errs, let him err on the side of mild and humane treatment. Do not suppose that I mean, Messrs. Editors, to condemn homely remedies. They are often very valuable. Many herbs—worm-wood for instance, witch-hazel, or "witch-hopple," as they call it in this neighborhood, and other simples are often useful. Still the doctor who prescribed fomentations of "hot water, and you may boil any herb in it you like," was not very far wrong.

Now, as to "Distemper, "Horn Ail" and "Hollow Horn," all the same I believe, for I feel sure that there is no disease that can properly be called by any of these names, and the names seem to be used indiscriminately. We see about so many times every year remedies proposed, and hear, at least I do, of cases in our own districts. Yet in what book except the one you mention in your April number, (Allen's) of any authority, is the disease mentioned as really existing. Mr. Allen is a man of experience and judgment, but not a veterinarian. I respect him very much. I have not his book, but I do not hesitate to pronounce the whole quotations in your April number, except the first sentence, irrational and absurd. Of the symptoms mentioned, "bloody urine" points directly to disease of the kidneys, and inflammation of the kidneys is one of the commonest diseases among horned cattle, and I have more than once successfully treated cases pronounced "horn distemper"—"the eye and head swollen"—a distended eye indicates suffering of every kind and from every cause. A swollen head I have never seen. I have seen swellings on the face and jaws, but always plainly from glandular enlargements, or from colds, or bruises. "Standing with the head against the fence," "eye dull and sunken," both indicating that the beast is "out of sorts," but indicating nothing more. "Horns cold?" Here we have the great trouble. "Horns *hot*" is just as bad. Unlucky is the poor brute that has hot horns or cold horns. He may well wish he had no horns at all. Will the mass of my brother farmers ever learn that the heat or coldness of the horns or ears tells no more than that the circulation is impeded or unnaturally accelerated. "Udder swollen," perhaps *milk*. I like to see them swollen—perhaps Garget—which every farmer ought to know how to treat, but which is not so pleasant. "Shaking the head," perhaps a fly is in the nostril, perhaps the beast has received a blow, perhaps it is in pain, perhaps feverish, perhaps inflammation of the brain—this fortunately very rarely—perhaps inflammation of the frontal sinuses—this also rarely, and not to be reached by any of the so called "remedies for horn distemper," of which, most that I have seen, are barbarous, creating rather than allaying inflammation. Many silly and more disgusting. I have known men to say "*it was* horn distemper, for we bored the horn and it was hollow." Did any body ever see a solid horn? and if it ought to be solid, could you make it so by boring a hole in it and putting in pepper or spirits of turpentine?

The fact is that many who ought to know better, call everything "horn distemper" or "hollow horn," when, as Mr. Allen very sensibly says, it is often "hollow stomach," to be cured by poultices of meal applied internally, or else simple fever, or indigestion, or often disorder of the kidneys. But this letter is too long. You must excuse me because, as you know, Messrs. Editors, I breed good cattle and love cattle, and as there is no veterinary surgeon within a hundred miles of me, I have to treat my own cattle when ill, which I am thankful is not often.

Let me conclude by advising every farmer to keep by them a copy of Youatt's book, or Dadd's, or both, and to buy Dadd's, if only to read the admirable chapter on "Horn Ail," which I think will convince him that *there is no such thing*. Indeed, Messrs. Editors, I wish you would, with Dr. Dadd's permission, publish that chapter.

P. Q.

NOTES FOR THE MONTH BY S. W.

I HAVE read twice over in the March *Farmer* Mr. RUSSELL'S remarks and your rejoinder on the "Action of Manures." So far as Indian corn is in question, I think Mr. R. is not borne out in his theory that "late crops require less ammonia in the soil than early crops;" nor that Indian corn requires, for a maximum crop, more phosphoric acid than is contained in stall manure sufficient to supply its ammonia. I invariably plant sweet corn, early and late, for family use, planting the earliest on the soil that is least manured, and late on the richest, well-manured soil, yet the early planted always attains the most stalk and the largest ears. I have had corn planted on the 5th of July perfect its ears before the frosts of October, but it was not as tall nor were the ears so large as the earlier planted: had the soil been poorer it would have been a failure. In fact, I have found that success in growing a late crop of Indian corn depended more on the season than on the manure; and that a deeply-tilled and well-manured soil alone enables the late plants to stand the drouths of July and August. It is evidently Nature's design that Indian corn should be forward enough for the drouths of summer to aid and perfect its cereal yield. I have often seen the growth of late-planted corn retarded by the same hot, dry weather that was perfecting the early-planted corn. Mr. R. is undoubtedly right in saying that roots require as much ammonia in the soil as the wheat crop. A soil may be too rich in ammonia for a maximum wheat crop, but not for Wuzrel beets or Indian corn.

"SHALL WE KEEP SHEEP OR COWS?"

The "leader" in the March *Farmer* is a full and condensed argument in favor of both. One word more may be said in favor of making cheese on grain farms: In the first place, they will sell green from one to three cents a pound higher than in the dairy districts, for home use; then to make up for the green pastures of the dairy region proper: a patch of Ohio corn, sown in drills for soiling, would be an inexpensive equivalent for good pasturage. Again, as much clover and timothy hay may be cut to the acre in the grain region as in the grass, if the soil is as well treated. There are two reasons why so little cheese is made in a grain-growing region: one is the want of knowing how and the lack of conveniencies; the other, the habitual neglect of the cows. Many farmers keep their cows half the winter at the straw-stack; hence they come out spring poor, and before they recuperate so as to give a full mess of milk, the drouth comes, pasture dries up, and four or five cows are often milked into one pail.

HOW TO GROW SOUND PEAS—PEA COFFEE.

A farmer who has grown the best imitation of Java coffee in the shape of peas, says that his seed peas were large and white, but full of bugs. Before sowing he put them into a basket and dipped them into boiling water; as the basket was directly lifted and the water drained off, the animal life only was killed. The peas were sown the next day, pretty thick. The result was that he had a good crop of beautiful white peas, entirely free from bugs. The small gray pea is not fit for coffee. The white field pea and the larger Marrowfat are much richer. The coffee flavor is only obtained from peas thoroughly parched and not burned. With cream and sugar, such coffee will agreeably disappoint old coffee-drinkers long confined to the ground coffee of the shops. But those who drink coffee for its stimulus alone, should, like the Spanish sailors, put a little rum "*agnadente*" in it. They say it thus "cheers without inebriating."

THE "FARMER'S" SUBSCRIBERS.

An old reader of the *Farmer*, who once prized its truly practical lessons on farm economy above those of any other paper, now ceases to subscribe for it, although he confesses that it is at the head of the agricultural press in the late discoveries which have added so much to the science of true farming. His sole excuse for not now taking the paper is, that he has quit farming and gone into merchandise. *Per contra:* Here is a man who has sent for the back volumes of the *Farmer* that he may have at hand the best authority in practical farming and gardening. This man, call him "fancy farmer," if you please, or "book farmer," he will always have fancy and enthusiasm enough to lighten his labors, while the mere drudge, who sees nothing worth having in growing the fruits of the earth but the dollars they are to put in his pockets, will go down to his grave a poor creature, unwept and unhonored even by those who inherit his dear-bought wealth.

TESTING THE QUALITY OF MILK.

A SIMPLE and reliable method of ascertaining the amount of butter in milk would be of great service. Many lactometers have been invented, but upon trial have proved unreliable. M. MARCHAND has lately devised a method which will determine the amount of butter in milk with great accuracy. It is as follows:

To a certain volume of milk in a long glass tube, closed at one end, and of about half an inch in diameter, add an equal volume of ether (having previously rendered the milk slightly alkaline by the addition of a few drops of a solution of caustic soda or potash.) The same volume of alcohol as that of the ether employed is then added, the proper quantities of milk, ether and alcohol to be used being indicated by three marks on the tube. After each addition to the milk, the tube is to be well shaken for a few moments, during which time it is to be firmly closed with the thumb of the hand holding it. The alcohol having been added, and the contents of the tube finally well shaken, it is then only necessary to immerse the tube for a few minutes in a vessel of warm water (the temperature of which is about 100° F.), when an oily layer will form on the surface of the mixture in the tube, and its thickness will be in direct proportion to the richness of the milk in butter. By having a graduated sliding scale, whose divisions bear a certain relation to the volume of milk employed, and this latter to a pint or quart, the amount of butter in either quantity of milk can be known in a few minutes.

SPIRIT OF THE AGRICULTURAL PRESS.

WASH FOR BUILDINGS.—The following recipe for making whitewash was given in the *Genesee Farmer* sometime ago. It is now "going the rounds," and may at this time not inappropriately form an item in our "Spirit of the Agricultural Press:"

"Take a clean barrel that will hold water; put into it half a bushel of quick lime, and slack it by pouring over it boiling water sufficient to cover it four or five inches deep, and stirring it until it is slaked. Dissolve in water and add two pounds of sulphate of zinc (white vitriol,) and one pound of common salt, which will cause the wash to harden on the woodwork in a few days; add sufficient water to bring it to the consistency of thick whitewash. To make the above wash of a pleasant cream color, add three pounds of yellow ochre. For fawn color, add four pounds umber, one pound Indian red, and one pound of lamp black. For gray or stone color, add four pounds raw umber and two pounds lamp-black.

"The following is the formula for the whitewash used for the minor buildings connected with the President's residence at Washington, D. C., both externally and internally: Slack six pounds of lime in hot water, covered from the air. Pass it through a seive in a liquid state. Add one-quarter of a pound of whiting or the same quantity of pulverized burnt alum, one pound of white sugar, three pints of rice flour made into a paste and one pound of glue (light colored). Add five gallons of boiling water to the whole mixture. Apply it warm to the outside of buildings, and cold on the inside. One pint will cover a square yard of outside work."

COTTON IN ILLINOIS.—The editor of the *Illinois Farmer* says cotton "is now becoming one of the regular crops in all that part of the State south of the Great Western Railroad, and small patches will be planted north of that point." Having visited the cotton regions of Alabama and Mississippi last season, he gives directions for its culture. The seed is sown in rows three feet eight inches apart, using plenty of seed and thinning out the plants six to twelve inches apart in the drills. Close planting dwarfs the plants and favors maturity. The young plants make little progress for the first few weeks, and in weedy lands the weeds would make bad work with the crops. To avoid this, "scraping," as it is called in the South, is resorted to. This is simply hoeing and scraping away the weeds from each side of the rows, but with our improved cultivators this is not needed. It is probable, he says, that topping may be beneficial by hastening the maturity of the crop.

HOW WIDE APART SHOULD APPLE TREES BE SET?—The *Gardener's Monthly* states that this question was discussed at a late meeting of the Fruit-Growers Society of Eastern Pennsylvania. Some members allowed their trees to branch from the ground, and never cultivated about them. These thought twenty feet apart sufficient. Others, who insisted on cultivating the trees, and had to trim high for this purpose, advocated thirty feet. The question was finally decided by vote, as follows: For 40 feet apart, one vote: for 33 feet, 6 votes; 30 feet, 9 votes; 25 feet, 70 votes; 20 feet, 3 votes.

CLOVER SEED IN ENGLAND.—The London *Farmers' Magazine* says: "Fine red clover seed is so scarce that extravagant prices have been paid for it, say 90s. per cwt. (say $11 per bushel in gold, or $17 in our currency), while some is only worth 40 shillings. Good American is worth 50s.a52s, per cwt.; and there has been free shipments to France in consequence of a bad crop there."

CANADA BARLEY.—The *Country Gentleman* recently remarked: "Out of the 2,814,700 bushels of barley received here (Albany), only about 500,000 are produced by our own farmers. Why should they abandon its culture thus largely to the Canadians?" The Hon. GEORGE GEDDES, in reply to this question, alludes to the Reciprocity Treaty, by which Canadian barley can be brought here free of duty. But surely this is no answer to the question, for the same is true of other grains. Another reason assigned is that "barley grows best on heavy soils in a cold damp climate, and in much of Canada all these conditions are found." Mr. GEDDES is a gentleman of great experience, and his statements deserve careful consideration. But is there not some mistake in regard to barley growing best on heavy soils? We have always supposed that it did best on rather light, warm, active soils. That it will do well on heavy soils that are brought into a fine mellow condition we know, but with ordinary cultivation a lighter soil we supposed was preferable.

CLOVER SEED.—A correspondent of the *Country Gentleman* observes, truly, that the seed of the large or late clover is difficult to obtain, even at much higher rates than the small kind. He says a neighbor of his in Niagara Co., N. Y., raises it very successfully by pasturing the clover quite close till about the middle of June, and then, after cutting or digging up all docks or other weeds, allows it to go to seed. It then ripens about the right time in September to fill well. He has averaged five bushels of seed per acre for several years.

HOG CHOLERA.—A correspondent of the *Country Gentleman*, states that he and his neighbors have been successful in treating this disease, as follows: He pounded together four ounces of copperas, four ounces of cooking soda, and one ounce of sulphur, and gave each hog a tablespoonful twice a week in its feed.

ILLINOIS FARMS.—The sales of lands by the Illinois Central Railroad Company are now greater than at any former period. The *Illinois Farmer* says "things now look as though we are on the eve of the largest immigration of farmers to the State that has yet occurred. Let them come. With the present price of farm products, farming land must advance."

FAT SHEEP.—The *Country Gentleman* states that J. WINNE, of Albany Co., lately sold 453 head of sheep at an average price of $11.75 per head. Of this number, 414 weighed 156 pounds each before leaving Mr. W.'s farm. They were Leicesters and crosses of that breed, purchased in Canada West last fall.

MORGAN'S IMPROVED HARROW.—JOHN JOHNSTON, in the *Country Gentleman*, speaks highly of this new harrow. He says "it is a wonderful improvement on any harrow he ever saw." It will do double the work of the Scotch harrow in the same time and do it better, and not any harder for the team.

BEANS.—The same writer, who has had much experience in the cultivation of beans, gives it as his opinion that the "Medium" is the most profitable variety of bean in this section. It ripens early and more easily than any other kind, and the crop is off in time for sowing fall wheat.

WALKS AND TALKS IN THE GARDEN—NO. 1.

We have been requested by one of our most enthusiastic horticulturists to continue our "Walks and Talks in the Garden." We hope to continue our "walks" in a garden for some time, but have some misgivings as to the profitableness of the "talks." Solomon says, "In all *labor* there is profit: but the *talk of the lips* tendeth only to penury." The man given to talking wastes not only his own time, but the time of those who listen to him. It would be very poor policy to let a story-teller work with a gang of men, even if he would work for nothing. Better pay him to stay at home. Such a man should be "sent to Coventry" during the busy season.

"But let us go and look at the hot-beds. Shut up this bright morning! that should not be. Push down the sash. Just as I feared. These young cucumber plants are all dead. The hot sun in this close atmosphere has been too much for them. If we had been working instead of talking this had not been. Well, there is no help for it now; we must plant again. A minute's labor would have saved all this trouble and delay."

"A pretty good joke, especially as last month in the *Farmer* you insisted so much on the necessity of ventilation and shading on warm days, and here on my first visit I find your hot bed closed, with the sun shining bright, and the plants killed by the heat and steam! I always heard that editors could preach better than they could practice. Your young cabbage and cauliflower plants are drawn up too much by the heat; half an hour longer and they, too, would have perished! But, if you will give me a few plants in a week or two I will say nothing about it!"

"There was a sharp frost this morning, and I noticed a fact that shows the advantage of evergreens for shelter. I was raking the graveled walk, and in that portion of the garden sheltered by an arbor vitæ hedge there was little or no frost, but on coming down the walk to where the hedge is of osage orange the gravel was frozen so hard that I had to give up the job. The hedge in both cases is the same distance from the walk, say 50 yards, and there is nothing that could make the difference except the increased shelter afforded by the Arbor vitæ."

"Last year we had excellent success in raising melons. The seed was sown in the open ground. Below some of the drills we put some manure, thinking it would forward the plants, but I could see very little difference. We put a box, covered with a pane of glass, 8 by 10, over each hill. The boxes cost but little, and will last for years. Here

is one. The two sides are a little higher than the ends, with a groove for the glass to slide up and down in."

"I hope you did not forget to draw out the glass a few inches on warm days to ventilate? Any old box that will keep off the winds is a great help, and you can throw something over it when there is danger of frost. The boxes, too, whether covered with glass or not seem to keep off the bug from cucumbers, &c."

"Black hellibore powder is the best thing to drive away the bugs, and also to kill the worms on the gooseberry and currant bushes. I mix it with a little sulphur and dust it with a dredger on the leaves while the dew is on. With succulent plants, however, *vigorous growth* is the grand means of preventing injury from insects. Let the soil be warm, rich and well cultivated, and the plants sheltered from cold winds, and the bugs can easily be kept under by an occasional application of the thum and finger machine. I was talking to a man who has had considerable experience in raising tobacco, and he says the "worm" seldom does much damage when the crop is strong. It is the weak plants that suffer. The reason is, he thinks, that the eggs are deposited on the under side of the leaves, and when the leaves are thick and strong the sun does not hatch the eggs till the plants are so far advanced that the worms can do little harm."

"Vigorous and rapid growth should be the aim of every gardener. Not only on account of the improved quality and quantity of the vegetables themselves, but as a means of preventing injury from grubs, insects, mildew, &c."

"Tomatoes are perhaps an exception. It is quite easy to get the ground too rich, especially if you wish them early. But for melons, squash, cucumbers, beets, parsneps, &c., you need plenty of manure."

"The *hoe* is a great fertilizer. We use it to kill weeds, but it enriches the soil at the same time. The same may be said of the spade and the fork. But do not dig or hoe when the ground is wet, it does more harm than good. I have a border where early plants have been raised for some years, but the soil is now so hard that it is difficult to get it into good working order, and the only reason I can assign for this is that it has been dug in the spring for some years, before the ground was dry enough to work properly. Land worked when wet bakes and packs, and does not recover from it during the whole season."

"Last spring I set out fifty or sixty peach trees, and design to train them so low that the branches can be bent down and pegged to the ground so that the snow will protect them. When I set them out I cut several of them back to within five or six inches of the ground. I was a little fearful that they would not grow, but all except one threw out nice, vigorous shoots and made a good growth. This morning I have been thinning out all the wood that is not wanted, and shortening-in the shoots to a few inches. While I was doing it, a Scotch gardener passed by and said that in Scotland they train peaches on a kind of slanting trellis and cover them with straw in the winter."

"It won't pay in this country."

"For general culture, certainly not; but when you want to be *sure* of a few peaches for your own use, it pays to take a little extra pains."

"I have just been sowing some peas, and after covering them commenced to rake the surface smooth and nice, with never a stone or a foot mark visible, but soon gave it up! It takes too much time. It looks very pretty, but then it is only for a few days. The peas will soon be up, and need hoeing, and then the ground not raked will look nearly or quite as well as the other."

"Raking is all very well if you can afford the time, and do not neglect the more important operations of digging and hoeing. Let these be thoroughly done, and then you may rake if you wish. In sowing small seeds it is necessary to make the surface fine and smooth, especially if you sow broadcast; but for such crops as peas, beans, potatoes, corn, &c., it is not essential."

A BOWER ROUND A TREE STUMP.

A correspondent of the London *Journal of Horticulture* says, "It sometimes happens, when trees are cut down a few inches from the ground, that

FIG. 1.—TREE STUMP PREPARING FOR A BOWER

they send up shoots all around the stumps. One mode of overcoming this evil, or rather of converting an object of annoyance into an object of utility and ornament, is illustrated by the following sketches. *Fig.* 1 shows the stump of a tree (Ash) with the young branches grown up round it; and *fig.* 2 illustrates the fashion in which these branches may be made to form an elegant canopy to one of the most natural of rustic seats—the stump of the tree; which may, however, be provided with a soft cushion if required. The branches need simply to be tied together by means of wire; and if a few plants of Ivy and Brier, with one or two of the more choice climing Roses are planted around the base, the whole would soon become very compact and beautiful. The wires should not be tied tightly, lest they should cut the branches in the course of time; and perhaps, for this reason, ordinary string

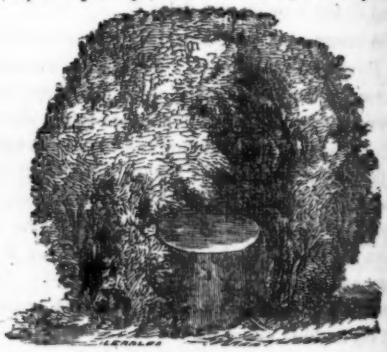


FIG. 2.—THE SAME MORE ADVANCED.

ties would be preferable." Instead of the English ivy, which does not stand our winters, the Virginia Creeper, (*Ampelopsis hederacea*,) may be planted. It grows with great rapidity and is very beautiful in the summer and autumn.

GRANT THORBURN.

As a cotemporary well says, one can not but confess a sensation of surprise at hearing of GRANT THORBURN's death. It is true he was very old (ninety years), but he has been so active, and kept himself so continually before the world by his pen—had, in fact, become such a fixture in the present age, that we had half forgot that he was mortal. Now people meet at the street corners and say, "Well, the old man has gone at last! He was a live man in his day"—and so he was: a *cannie* Scot, full of shrewd humor, deep penetration, and an ambition to be something more than a mere stick in the world.

The London *Journal of Horticulture* gives the following sketch of GRANT THORBURN, "the real Lawrie Todd."

It was somewhere about the year 1833 or 1834, that we met in the quadrangle of Edinburgh University a *wee wee man*, about 4 feet 10 inches high, clothed in very long garments, the skirts of which reached to his ankles, and a very low-crowned and very broad-brimmed hat upon his head. His feet, like the brim of his hat, were out of all proportion to his body, for they were very large and very long; but beneath that broad brim there shone a beaming countenance, full of intelligence, benignity and playful humor. It needed not to have his name announced, for the world had been made familiar with his portrait through *Fraser's Magazine*, and we had no difficulty in at once recognising the living image of GRANT THORBURN.

Grant Thorburn

Our woodcut is a faithful portrait of that original, and we learned that he was the model from whom Galt sketched his "Lawrie Todd." That sketch by no means pleased the model; it contained, he says, "scraps and mutilated extracts" of his history, and, as he proceeds, "I have always found that whatever business was laid to my hand, was best done when I attended to it myself:" therefore, "I think I owe it to myself to state the simple truth;" and we owe Grant Thorburn no merely customary thanks for having paid that which he considered a debt due to himself, for he has left more than one most amusing and most instructive record how he, an emigrant nailer, "landed on Governeur's Wharf, New York, with only three cents in his pocket, and his nail-hammer in his hand, and rose to have a seedsman's establishment the most extensive in America." This suggests the inquiry, How was it brought about?" We will endeavor to show in his own words.

"I was born in Dalkeith on the 18th of February, 1773. My father was poor, (some are cursed with rich fathers,) honest and industrious, and by trade a nail-maker. He was a very strict Scotch Presbyterian, a Covenanter, and like his neighbor and prototype, Davie, the father of Jeannie Deans, an honest man. Our cottage stood within two miles of Davie Dean's farm, within three of the Laird of Dumbiedike's mansion," immortalized in the "Heart of Mid-Lothian."

Passing over the incidents of his youth, and as he verged upon manhood, he relates, "In the year 1792, when the French Revolution had fairly commenced, and the pulpit and press were teeming with Reform, I joined the Societies of what were then called the 'Friends of the People,' and in London were termed 'The Corresponding Societies,' whose ostensible motive was to obtain the reform of parliament by a more equal repre-

sentation; and in the winter of 1793, with seventeen more of the members of the said society in Dalkeith, I was marched a prisoner into Edinburgh. We entered the town marshaled two and two through a concourse of people, one woman among whom, when she saw me bringing up the rear rank, exclaimed in her broad Scottish dialect, 'The Losh presarve us! if the king be afraid of sic a little fellow as that, I dunna ken what will become of him!'"

"The little fellow was examined and discharged by the magistrates; but either he feared he might be led into overt acts of reform, or he was resolved to live where there was no king to fear or make afraid—at all events he sailed for New York with his brother in 1794. When they arrived they could not land on account of the expense of living on shore, for they had but six and a half cents between them. So says our hero, "My brother and I sat down on the deck, his feet against my feet, and a wooden bowl of potatoes between our legs, and began to scrape the skins off from the potatoes. Whilst thus employed, a hardware merchant came on board and enquired if there were any nail makers? I caught the word, and answered I was one. He was a tall man, and looking down on me inquired, with a tone of surprise, 'Can you make nails?' I answered quickly, 'I would wager sixpence, (all I had,) I would make more nails in a day than any man in the country.'" Thorburn knew he could make 3320 nails between 6 A. M. and 9 P. M., so he was tolerably sure of a triumph.

Thorburn and his brother were hired; they were industrious, obliging, God-fearing young men, so they were respected and prospered; but we must pass on to 1802, when he thus proceeds, "About this time the ladies of New York were beginning to show their taste for flowers; and in the fall of the year, when the plants wanted shifting, preparatory to being placed in the parlor, I was often asked, (for he then kept a grocer's shop) for pots of a handsomer quality than the usual red earthen ware. It came into my mind to paint some of my common flower pots with green varnish paint. They sold fast, and to good advantage. In the April following I observed a man for the first time selling flower plants in the Fly Market. As I passed along I took a leaf, and rubbing it between my finger and thumb, asked him for its name. He answered, 'a Geranium.' This, as far as I recollect, was the first time I ever heard that there was a Geranium in the world."

Thorburn bought two of those Geraniums, sold them speedily in his "green varnished pots," and soon found that it was a ready, profitable trade, and that purchasers asked for seeds. This set him "thinking that if I could get seeds I would be able to sell them; but here lay the difficulty, as no one sold seeds in New York!" He soon arranged with the man "in the Fly Market" to stay at home and grow plants and seeds, whilst he, Thorburn, opened a shop and sold them. But war broke out; he attempted to grow seeds, failed, and in 1815 was released a whitewashed bankrupt, with a family to support, and but twelve dollars with which to begin life again.

"Lawrie Todd" was not the man to be cast down, for he through life strove to do what he ought to do, and one passage in his morning of life is a fair illustration of the whole until the shades of its night closed, so we will quote but one—

"One Sabbath morning some young men of our passengers called at my lodgings.

"'Where are you going to-day?' said they.

"'To church,' said I.

"'Oh!' said they, 'let us go to Long Island, and take a stroll in the fields. Our health requires exercise after being so long on ship-board.'

"'You may go where you please,' said I, 'but I go to church. The last words my father spoke as we parted on the shore of Scotland, were, "Remember the Sabbath day!" I have not so soon forgotten his words.'

"They went to the fields, I went to church; they spent a few shillings, I put a penny in the plate. Some of them earned nine or ten dollars a week; I only received five and a half. They would get a light wagon, drive off with some young ladies, spend five or six dollars, get caught in a thunder shower—fine clothes and hats all spoiled—come home half drunk, rise at eight o'clock on Monday morning with aching bones, sore heads, down cast looks, and guilty conscience. I went to church, rose at five o'clock on Monday morning with a sound head, bones and body refreshed and rested, entered the labors of the week with a clear head and quiet conscience. At the end of the year they had fine clothes, fine hats, and powdered heads, but I had a hundred hard dollars in the corner of my trunk. They, having lived fast, all died young; while I, in consequence of my regular living, have not been confined a day by sickness in fifty years."

In 1815, a friend having lent him $500, Thorburn again commenced business as a seedsman, and from that time his life was a long succession of prosperous and happy years.

The following example of his "Advertisement" in the public papers, is both characteristic and historic.

"In 1799 the subscriber commenced business with three pots of Geraniums, a monthly rose, and $15 worth of seed. The seeds grew till they filled the whole continent—the Rose blossomed till it spread into a tree, and the little birds formed their nests under its branches. Presently there came forth a host of pretenders, boasting of what they could do; they did nothing. In 1818 appeared William Cobbett. This same Cobbett, in 1793–4–5, published the 'Porcupine's Gazette' in Philadelphia; its object was to prove to a demonstration that all republics were humbugs—that kings only had a divine right to reign—and that the Americans were a set of consummate rebels. The mob tore down his office, made 'pi' of his types, and scattered his porcupine quills in their native air. He fled to England, returned to New York a full-blooded radical Democrat, and opened a seed-shop at 62 Fulton street, where he sold ruta baga at $1 per pound, and black pigs for $10 each. For a long space of time you could hear nothing in Wall or Exchange streets, but Cobbett and his black pigs—Cobbett and his ruta baga. The consternation was similar to that at Frankfort, when the man rode through the streets with the long nose, and still the wonder grew whether the nose was a paper one or a *timmer* (wooden) nose. He vowed he would drive Thorburn from the boards with his black

pigs and ruta baga, in less than six months. Before twelve he closed the concern, and again sailed for England. Naked he came into America, and naked he returned from thence; his whole goods and chattels, a few minor articles excepted, consisting only of ruta baga and smoked hams from the hind quarters of his black pigs; he shipped one case, however, which by some estimation was beyond all price—viz.: a rough Albany deal board formed into a square box, and in this box was deposited the profound skull and dry bones of the venerated Thomas Paine, author of "Common Sense," &c. Out of these bones Cobbett meant to have made political capital, but they were seized by the custom house at London for duty, and sunk (if report speak true,) in the deep green sea.

"From this subject it may be profitable to observe how similar are the movements of political quacks in all countries and at all periods. It is but a few years since that our political jugglers turned the world upside down about Morgan, his dry bones and split skull; Louis Phillippe, too, and his French radicals, must needs parade the bones of Buonaparte wherewith to make a bank political.

"But enough of this long preamble. It is only meant to let his friends know that Grant yet lives—his eye as clear, his head as sound, and his health as good as in 1801—and this being the first day of spring, he is provided with the usual supply of goods, (as they say in Pearl street,) to accommodate his friends; and his being only a branch from the tree at 15 John street, the seeds, on trial, will prove good. American and European flower seeds just received. Boquets prepared for the ladies in the neatest order. Catalogues gratis. Gentlemen supplied with gardeners, &c.—GRANT THORBURN."

His grandsons, under the name of J. M. THORBURN & Co., still carry on the seed store at 15 John street, and we rarely go to New York without paying a visit to this time-honored establishment. It is one of the largest, most enterprising, and reliable seed houses in the United States. Another branch of the family have for thirty years carried on a similar establishment in Albany. So much for the poor emigrant boy of seventy years ago.

WHAT IS THE CAUSE?—It seems to be a fact that the buds on the Early Crawford peach trees are considerably injured, while some other varieties have escaped. What is the reason? Rev. Mr. FREEMAN, of Parma, asks us the question. He says that his Early Crawfords are materially damaged, while the white-fleshed varieties, such as the Sweetwaters, Kensingtons, Early Purples, &c., are not injured at all. Is it the effect of cold, or is it the want of vitality in the tree? The fact that last year his Early Crawfords bore profusely, while the white-fleshed varieties bore only moderate crops, seems to indicate the latter as the true cause. Will our experienced correspondents give their views on the subject?

UNDERDRAINING GARDENS AND ORCHARDS.

THE great objection to underdraining farm land is the expense. In sections where land is cheap, it is somewhat doubtful whether it will pay to expend $20 or $25 per acre in underdraining; but where the price of land is high, we are safe in asserting that no money can be more profitably invested—none will pay a higher interest—than that laid out in judicious underdraining.

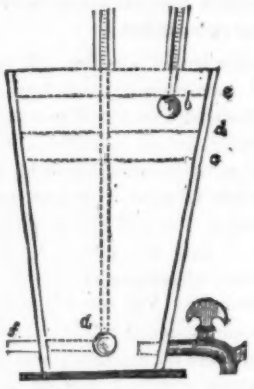
The same is true of a garden. It is more highly cultivated than ordinary farm land. Much more labor is expended upon it. The seed, plants, trees, &c., are costly, and we can afford to manure more highly and cultivate more thoroughly than for crops which are less valuable. On such land, on which so much labor, time and money are expended, it is the hight of folly to render the whole comparatively useless by refusing to expend a few dollars in underdraining. Yet few things are more common. In our cities and villages, where horticulture is pursued more for recreation than as a source of profit, where excellent gardens are frequently found, this neglect is not so general; but among farmers how rare is it to find a garden or orchard thoroughly underdrained? And, as a consequence, how rare is it to find a farmer's garden worthy of the name!

There is no climate in the world where underdraining is more imperatively needed than in the Northern States and Canada. Our springs are late and the ground very cold. Hot days are not unfrequent, and the buds start and growth commences while the soil is so cold as to entirely check the growth of roots. A tree or plant in such circumstances cannot be healthy. It is now fully proved that all parts of a healthy tree grow together—if the branches grow the roots must likewise grow; and it is essential that the temperature of the soil should correspond with the temperature of the atmosphere. If the soil is cold the formation of roots is prevented, and the sap which should go to form roots is thrown back into the circulation, and not unfrequently becomes deseased. We believe this is the chief cause of the "curl of the leaf" in peaches, and probably of the "black knot" in plum trees. It should be our aim, therefore, to render the soil as warm as possible.

It has been proved by actual experiments that a soil which is full of stagnant water is at least 10° colder than one which is underdrained. The reason of this is owing to the well-known fact that heat cannot be transmitted downwards through water.

Dr. LINDLEY, in his new edition of the Theory of Horticulture, gives the following experiment which establishes this important fact:

EXPERIMENT No. I..—A square box was made of the form represented by the annexed diagram, eighteen inches deep, eleven inches wide at top, and six inches wide at bottom. It was filled with peat saturated with water to *c*, forming, to that depth,



(twelve and a half inches) a sort of artificial bog. The box was then filled with water to *d*. A thermometer (*a*) was plunged so that its bulb was within one and a half inch of the bottom. The temperature of the whole mass of peat and water was found to be 39½° Fahr. A gallon of boiling water was then added; it raised the surface of the water to *c*. In five minutes the thermometer *a* rose to 44°, owing to conduction of heat by the thermometer tube, and its guard. At ten minutes from the introduction of the hot water the thermometer *a* rose to 46°, and it subsequently rose no higher. Another thermometer, (*b*) dipping under the surface of the water at *c*, was then introduced; and the following are the indications of the two thermometers at the respective intervals, reckoning from the time the hot water was supplied:

	Thermometer *b*.	Thermometer *a*.
20 m. . . .	150° . . .	46°
1 h. 30 m. . . .	201 . . .	45
2 h. 30 m. . . .	80½ . . .	42
12 h. 40 m. . . .	45 . . .	40

The mean temperature of the external air to which the box was exposed during the above period was 42°: the maximum being 47° and the minimum 37°.

EXPERIMENT No. II.—With the same arrangement as in the preceding case, a gallon of boiling water was introduced above the peat and water, when the thermometer *a* was at 36°; in ten minutes it rose to 40°. The cock was then turned for the purpose of drainage, which was but slowly effected, and at the end of twenty minutes the thermometer *a* still indicated 40°; at twenty-five minutes 42°, whilst the thermometer *b* was 142°. At thirty minutes the cock was withdrawn from the box; and more free egress of water being thus afforded, at thirty-five minutes the flow was no longer continuous, and the thermometer *b* indicated 48°. The mass was drained and permeable to a fresh supply of water.

Accordingly another gallon of boiling water was poured over it, and in

3 minutes	the thermometer *a*	rose to	77°
5	"	" fell to	76½
15	"	" "	71
20	"	" remained at	70½
1 h. 50	"	" "	70½

In these two experiments the thermometer at the bottom of the box suddenly rose a few degrees immediately after the hot water was added; and hence it might be inferred that heat was carried downwards by the water. But in reality the rise was owing to the action of the hot water on the thermometer, and not to its action upon the cold water. To prove this, the perpendicular thermometers were removed. The box was filled with peat and water to within three inches of the top; a horizontal thermometer (*a f*) having been previously secured through a hole made in the side of the box by means of a tight-fitting cork, in which the naked stem of the thermometer was grooved. A gallon of boiling water was then added. The thermometer, a very delicate one, made by Newman, was *not in the least affected* by the boiling water in the top of the box.

In this experiment, the wooden box is a field; the peat and cold water represent the water-logged portion; rain falls on the surface and becomes warmed by contact with the soil and thus heated descends. But it is stopped by the cold water, and the heat will go no further. But if the soil is drained and not water-logged, the warm rain trickles through the crevices in the earth, carrying to the drain-level the high temperature it had gained on the surface, parts with it to the soil as it passes down, and thus produces that bottom heat which is so essential to plants, although so few suspect its existence.

HOW TO ENRICH A GARDEN.

A GENTLEMAN of this city recently applied to us for information in regard to manuring his garden. He has an acre of naturally good land, but it has been neglected. He is determined to enrich it and have a good garden "regardless of cost."

"Your best way," we said, "will be to buy manure in the city."

"But I cannot get a load without picking it up here and there. The nurserymen have contracts for it, and sweep the board."

"Then you must use artificials."

"What kinds?"

"All things considered, superphosphate of lime and sulphate of ammonia, are the best and cheapest."

"What will they cost?"

"Delivered here the former will cost about 3 cents per lb., and the latter 7 cents. You will want about 300 lbs. of sulphate of ammonia, and 400 lbs. superphosphate. This will make your garden, for one year at least, as rich as you can desire. Sow the sulphate of ammonia broadcast after the

land is dug, and rake it in. The superphosphate I would sow in the drills. It will not hurt the seed or the roots of the plants."

"Three hundred lbs. sulphate of ammonia at 7 cents is $21, and 400 lbs superphosphate at 3 cents is $12. Total, $33. I will order them at once."

He has done so, and we have no doubt that under the circumstances he could not make a better investment. The manures act at once, are free from weeds, easily applied, and will make plants grow with a rapidity and vigor that will astonish those who have never used them. We have used these manures, and many others, for several years, and would urge all who take delight in a good garden to try them.

CULTIVATION OF PEACHES IN NEW JERSEY.

The Hon. William Parry, of New Jersey, an experienced and intelligent horticulturist, writes as follows to the Hammonton (N. J.) *Farmer:*

As it requires some time to prepare new land for crops which require a smooth and even surface, as grass for mowing, &c., it is well to select such crops to occupy the ground for a few years as delight in new soil, and are not incommoded by the stumps and roots remaining. Most prominent among that class is the Peach, which is so particularly adapted to new land that it seldom, if ever, will yield a crop where peach trees have grown before. The land around Hammonton is admirably adapted to the cultivation of peaches; the light and mellow soil allows the heavy rains to filter through it, and leave the surface free to imbibe the atmospheric influence, and does not bake in drying, so as to exclude the air, like heavy, loamy land. There are peach trees in Atlantic county over fifteen years of age, in a flourishing condition, bearing annually fine crops of luscious fruit.

There is scarcely an enterprise offering such rich rewards for capital and labor as the extensive cultivation of peaches along the Camden & Atlantic Railroad. Orchards there would rival those so celebrated in Delaware, which will soon be among the things that were, and Delaware must yield up the business, as the land is passed over, to some other untried section, and circumstances naturally point to South Jersey, where the climate and soil are equally as favorable, and conveyance to market more quickly obtained. Those who first engaged there in the business, like Ridgway and Reeves, in Delaware, will make fortunes before others commence. Not that the market will be overstocked with peaches, for that is impossible since the system of railroads has become so complete, carrying them in a fresh state to the Northern and Eastern cities, and the art of canning introduced, by which they may be preserved for years, and shipped to any part of the world; but the land suitable for their culture, which is now offered at low rates, very soon must and will be taken, and converted to a use which yields so large and certain a return.

The proper method of raising peach trees is to save seed or pits from trees which are perfectly healthy, and free from yellows, borers and all other defects that would tend to weaken the constitution of the parent stock. These should be deposited near the surface of the ground, in the eighth month (August), and covered with about two inches of sand, so as to allow them to freeze and thaw during the winter. In the following spring about two-thirds of them will open their shells, and the kernels may be picked out and planted in mellow land, prepared the same as for corn, potatoes or other vegetables, in rows four feet apart, and six to eight inches in the rows. They must then be cultivated and kept clean till the latter part of summer. When they are in a flourishing condition, the operation of budding is performed, by selecting buds of such varieties as it is desirable to propagate, from trees that are *perfectly healthy.*

The bud is cut out with a sharp knife, slipped under the bark of the young stock, and tied closely in with matting or soft yarn, which must be cut away in about two weeks, to prevent injuring the stock, which is growing rapidly. In the spring following, the top of the stock must be cut off just above the bud, after it has become well developed, which is to form a new tree of the kind from which the bud was taken, without any reference to the character of the tree upon which the kernel grew; and the only quality requisite for it to possess is *perfect health.*

The young trees should remain and grow one summer in the nursery, before they are moved to the orchard, the ground for which should be prepared, after removing the timber and brushes, by ploughing and harrowing the same, as for planting corn, which should be the first crop grown among the peach trees, and will fully repay the whole cost of purchasing and planting the trees, if obtained from a nursery, instead of being grown by the person who is about forming an orchard.

The ground should be marked in squares, by drawing furrows, twenty feet apart each way, with a plow. Holes are then to be dug at every cross, twice as deep and large around as would just receive the roots in their natural position. The roots should be carefully examined, and all bruised parts cut smooth with a knife, drawing it from the under side out. The yellow subsoil thrown from the bottom of the hole, is not to be returned again around the roots, but mellow surface soil must be filled in, and packed closely under and over the roots, so as to prevent any cavities remaining after the tree is planted. An orchard thus carefully set out, must not be neglected, as though all that was necessary to insure a good crop had been done until the time should arrive for it to yield fruit; but it must be treated like a friend, frequently visited its condition inspected, and health inquired after, and a full response will come from the leaves and bark and general appearance of the tress. The ground should be kept mellow and clear of leaves by frequent stirring, the suckers and surplus branches should be trimmed off, and the ends of the most vigorous limbs shortened in, so as to give a more compact head. If gum should be seen oozing from the stem, near the ground, take a knife and remove the little intruder that is preparing to make its winter lodging under the bark. If this operation is performed twice during the summer, for two or three years, the bark will become hard.

Miscellaneous.

THE YOUNG WIDOW.

She is modest, she is bashful,
  Free and easy, but not bold—
Like an apple, ripe and mellow,
  Not too young, and not too old.
Half inviting, half repulsive,
  Now advancing and now shy,
There is mischief in her dimple,
  There is danger in her eye.

She has studied human nature,
  She is schooled in all her arts,
She has taken her diploma
  As the mistress of all hearts.
She can tell the very moment
  When to sigh and when to smile,
Oh! a maid is sometimes charming,
  But a widow all the while!

You are sad? How very serious
  Will her handsome face become.
Are you angry? She is wretched,
  Lonely, friendless, tearful, dumb.
Are you mirthful? How her laughter,
  Silver sounding, will ring out—
She can lure, and catch, and play you
  As the angler does the trout.

Ye old bachelors of forty
  Who have grown so bold and wise,
Young Americans of twenty,
  With your lovelooks in your eyes,
You may practice all the lessons
  Taught by Cupid since the fall,
But I know a little widow
  Who could win, and fool you all!

Japanese Oddities.—One great peculiarity of the people is their mania for squatting. They seem to do every thing in this position, and even when a man is plowing in the field he looks as though he wanted to squat. Their habits in so many things seem to be so exactly the opposite of ours, that it almost resolves itself into a rule that every thing goes by contraries. When they cook a goose, instead of putting the goose on the fire, they put the fire in the goose—thus making a great saving of fuel. In planing a board, they plane towards themselves instead of from themselves. When you go into a house, instead of taking off your hat you take off your shoes. Instead of saying John Smith, they would say Smith John; and instead of Mr. Brown, Brown Mister. The country is rich in flowers and vegetable productions. They have carried the art of making paper to great perfection. Dr. McGowan saw an overcoat made of paper, perfectly strong and serviceable. They weave their paper, and make what may be called paper cloth of it.

A gentleman recently attended a "circle" celebrated for its spiritual insight, and obtained information of a very important kind. A miserable and unprovoked murder had been committed. He was anxious to satisfy himself as to the guilt of the supposed criminal, and asked if the spirit of the deceased could be summoned. He wrote his name on a piece of paper, and quick rappings testified to the fact that the dead one was present. "Was he whose name I have written really your murderer?" The raps were affirmative. "I have noted some of the strange circumstances attending your burial; are they correct?" The raps answered: "I was buried just as you have described." The name was "Cock Robin."

A New Theory.—The French Academy of Sciences, at a late meeting, listened to a paper from M. Delbruck, which, if well-founded, will upset a good many of our existing notions about ventilation. M. Delbruck has made some researches on the quantity of air required for breathing during sleep. It strikes him as singular that, while all medical men are unanimous in prescribing several cubic metres of pure air for each person sleeping in a room, as absolutely indispensable for health, all animals appear to shun the open air as much as possible, in order to compose themselves to sleep. Thus, the lion and tiger retire to some dark cavern, where the air is confined; the dog goes to his kennel, and thrusts his snout under his belly; birds, to which the open air would appear to be a necessity, whether asleep or awake, retire to some private corner, and put their heads under their wings. Nay, what does the schoolboy do, when left in a dormitory aired with particular care? If he finds he can not fall asleep, the first thing he does is to bury his head under the bed clothes. Hence M. Delbruck concludes that if, when awake, we exhale a quantity of carbonic acid, we must inhale a certain quantity of this gas during sleep, just as plants exhale by day the oxygen they absorb during the night.

An old lawyer was giving advice to his son, who was just entering upon the practice of his father's profession. "My son," said the counsellor, "if you have a case where the law is clearly on your side, but justice seems to be against you, urge upon the jury the vast importance of sustaining the law. If, on the other hand, you are in doubt about the law, but your client's case is founded in justice, insist on the necessity of doing justice, though the heavens fall." "But, asked the son, "how shall I manage a case where both law and justice are dead against me?" "In that case, my son," replied the lawyer, "talk round it!"

They had a kind of semi-public baby show in Poodue, (Cape Elizabeth, Me.,) recently, and the mothers were requested to decide which baby should have the prize as the smartest and the handsomest. When the slips containing the votes were examined, it was found that each mother had voted her own the handsomest! How very natural, to be sure!

A fellow was one day boasting of his pedigree, when a wag who was present remarked very sententiously: "Ah! I have no doubt. That reminds me of a remark made by Lord Bacon, that they who derive their worth from their ancestors resemble potatoes, the most valuable part of which is under ground."

A set of ornaments of pink coral has just been completed, after five years' labor, for the Empress Eugenie. One of the stones came from the head of Madame de Pompadour's cane, and all are of great value. To such trivialities does this Imperial female give her time and the people's money.

After quoting John Locke, that a blind man took his idea of scarlet from the sound of a trumpet, a witty fellow says that a hoop-skirt, hanging out of a shop door, reminds him of the peel of a belle!

Ladies' Department.

ORIGINAL DOMESTIC RECEIPTS.

Contributed to the Genesee Farmer.

White Cake.—One-half cup of butter; one-half cup of cream; two cups of sugar; three cups of flour, and the whites only of four eggs. Flavor with fresh lemon juice.

Corn Griddle Cakes.—Turn three pints of scalding milk to one quart of meal and four tablespoonfuls of flour; when milk warm add four eggs and a little salt. Bake on a griddle.

Best Method of Preparing Coffee.—Put the quantity of coffee necessary into as much water as will be needed and let it soak over night. This extracts all the flavor, and it will not require to boil but a few moments; and great care should be taken on this point, as the aroma escapes very rapidly while it is boiling. It will not do, however, to let it only simmer, as the essence will not be fully extracted.

FRYING.

The New York *Evening Post* makes the following extract from a lately published work on the "noble art of frying, for which the author deserves, and ought to receive," says the *Post*, "the great gold medal of every Humane Society and Life-Saving Institute in the world. In this country frying is so little understood that the frying-pan is banished from nearly all well-regulated households, as the potent breeder of dyspepsias, ill-tempers, nightmares and morbid hallucinations of many kinds. And yet in the hands of a skilful cook this instrument is as harmless as the gridiron, and is used to produce many dilicious dishes. Attend then, O housekeepers of America, to the words of wisdom:"

"It is a great art, too often sadly neglected. Frying is, in fact, boiling in oleaginous matter; but if there be too little liquid in your pan, only half your object is boiled; the other is warmed into a greasy mass of half-done viand, by the drops that are thrown up and fall on the upper surface, there remaining to displease the eye and disgust the palate. To fry, the object must be totally immersed at once in the heated mass of liquid oleaginous matter; for the rule is the same whether you use lard, butter or olive-oil. The first and greatest care of the good cook is to see that there be plenty of liquid in the pan; the second, that the liquid be of a proper temperature, and nothing, in fact, is easier if proper attention be paid to what you are about, and a fault-like negligence is inexcusable in so momentous a matter. Having seen that a proper quantity of oil, butter or lard, as the case may be, is put into your pan, place it on the fire and let it heat till you have obtained the proper temperature. To learn when this has arrived, have ready several small sticks of bread and dip them from time to time in the liquid. When the heat is enough, you will see that the bread, on being held for a few seconds, becomes of a clear brown color. When you have a small object to fry, now is your time; plunge it in and lift the pan a little above the fire, for the heat must not be allowed to increase, or your object becomes too dark in color—it is burnt, in short. When your object is large, then you must allow the color of your bread, when you withdraw it, to be more strongly pronounced; for the immersion of a large object—a sole, for instance—will reduce the temperature to the proper tone, and at that you must regulate it, neither allowing it to be too hot nor too cold. By attending to this you will always find the color clear and bright, and not in the slightest degree greasy in appearance. You should always take care, too, that the egg for your *pan* should be very thinly and evenly laid on; to insure this, the white only should be used and beaten for a long time, and when spread it should be allowed to dry for a little before adding your bread-crumbs or flour. For myself, I always prefer what I have used to-day, namely, the flour of the haricot-bean very finely ground."

HINTS FOR BUTTER MAKERS.

Mrs. Eliza A. Call, of Fabius, N. Y., the author of *The Young Housekeeper & Dairymaid's Directory*, furnishes us the following hints in regard to butter making. We should be glad of the experience of other ladies on this important subject:

Everything appertaining to milk things should be kept perfectly sweet and clean. The milk should be strained as soon as brought in. To secure the greatest amount of cream set the milk in large tin pans, and place them on a rack made for the purpose. The bottom of the pan thus being exposed to the temperature of the milk-room, cools quicker in summer and warms sooner in winter. The milk-room should be separate from the kitchen pantry; nothing that will cause the milk to sour should be permitted to stand in the room. The milk should be narrowly watched, and as soon as it thickens the cream should be taken off. If suffered to stand long after it congulates there will be white specks in the butter, which will be hard to wash out. A stone jar, that can be covered closely, answers very well to keep cream in, but a large tin pail (called the cream pail), we have found to be the most convenient; it is easier handled, and in summer the pail can be placed in cold water to cool the cream, and in winter it is very nice to place in warm water to warm the cream. For churning, the cream should be at a temperature of sixty-five degrees. At each skimming the cream should be thoroughly stirred from the bottom, with a wooden stick, made on purpose. It may be made something like a common pudding stick. The cream should be covered from the beginning to the end closely. Leaving the cream exposed to the air is one way to make poor butter. It should never stand over three days in warm weather, nor more than six in cold. The cream should be put down from the sides and cover of the churn as soon as the butter begins to come. After the butter is well churned, the sides of the churn should be rinsed down, the butter taken with a butter-paddle into a wooden tray or bowl after they have been well scalded. I say paddle, because if I were to choose from all the different kinds of laddles ever made, I should choose a paddle. The butter should be washed in cold spring or well water until the water comes off clear. After it has been washed it should be salted. The salt should be worked in well. Set it away and let it stand twenty-four hours. Then it should be thoroughly worked and stand another twenty-four hours before packing the last time.

It will be a difficult task to give an exact rule for salting butter—there are so many tastes; but butter for market need not be salted as much as for family use. For family use we put in a heaping tea-saucer full into eight pounds of butter, and the same quantity into twelve pounds for market. Foreign salt is the best to use for salting butter, but we have found that a good article of Onondaga *coarse* salt answers every purpose. We have found, by experience, that it is better than the fine salt made at the same place for salting butter.

Young People's Page.

ANECDOTE OF A TAME RAT.

Buckland tells in his curiosities of Natural History the following anecdote of a tame rat which, if it did not come from such a reliable source would be scarcely creditable:

"Some time ago the driver of a Bow and Stratford omnibus was moving some trusses of hay in his hayloft, when snugly coiled up in a corner, he found a little miserable-looking rat, whose mamma, having carefully tucked him up in bed, had gone out on a foraging expedition to find something for her darling's supper. The little fellow being of remarkably piebald color, excited the pity of the omnibus man, who took him up, and brought him home to his family. The little children soon took to their new pet, and named him Ikey, after their eldest brother, whose name was Isaac. The little creature soon grew up, and reciprocated the kindness he had received, by excessive tameness towards every member of the family. He was therefore allowed to roam about the house at perfect liberty. His favorite seat was inside the tender, or on the clean white hearth, but strange to say, he would never get on it unless is was perfectly clean.

"His master had perfect control over him, and made, for his special benefit, a little whip, with which he taught him to sit upon his hind legs in a begging posture, jump through a whalebone hoop, drag a small cart to which he was harnessed, carry sticks, money, etc., in his mouth, and perform many other amusing tricks.

"The master became so fond of his rat that he taught him at the word of command, "Come along, Ikey," to jump into his great coat pocket in the morning, when he went out to his daily occupation of driving the 'bus.

"He did not, however, carry him all day in his pocket, but put him in the boot of his 'bus to act as guard to his dinner. But why not the rat eat up his master's dinner? because, as said the man, "I always gives him his bellyful when I has my own breakfast before starting." The dinner was never touched except when it happened to consist of plum-pudding. This Ikey could not resist; his greediness overcame his sense of right, and he invariably devoured the plums, leaving the less dainty parts of the repast for his master. The rat acted as a famous guard to the provisions, for whenever any of the idle fellows who are always seen lounging about the public houses where the omnibuses bait, attempted to commit a theft, and run off with the bundle out of the boot, Ikey would fly out at them from under the straw, and effectually put to flight the robbers.

"His teeth, after a time, became bad and worn out, and the children finding this out, delighted to give him a sort of hard cake, made of treacle, called, in infant parlance, jumbles, or brandy snacks. Of these Ikey, in his younger days, was very fond; but now, on the contrary, they gave him much trouble to masticate, and his perseverance and rage when attacking the said brandy snacks caused the young folks many a hearty laugh.

"This rat is, I believe, still alive, and enjoys good health, though, the weight of age pressing on his hoary head, he requires many little attentions from his kind and tender hearted protectors.

A LITTLE GIRL'S INFLUENCE.

Did you ever see the inside of a drunkard's home, with every thing going to wreck and ruin? If you have, you know how Old Hunter's looked; not that he was very old, but he was so shabby and used up the boys used to call him old. He was very ugly when in liquor, abusing his wife and children shamefully. They often hid when they heard him coming; and the time has been when his poor wife was turned out into a snow-bank. He had one little girl, however, the youngest, that seemed to fare better at his hands than the others. To her he was always kind. In his worst moments he appeared to know and spare Luly.

One day she crept into his lap, and looking up into his face, "Father, I love 'ou," she said. Luly could not speak all her words plain, though she was old enough to. "Father, I love 'ou," she repeated, "I love 'ou." "Do you, Luly?" said her father in a subdued tone. "Father, I want you to be a good mans, 'cause I love 'ou. You will be a good mans, father won't you? God wants you to be a good mans.

Tears rushed to the poor father's eyes, and he hugged his little girl to his bosom. Then he set her down and hurried out of the house. He had a job that day, and went back to his work. Yet he saw and heard nothing for the rest of the day but Luly and her pleading words. *He* loved, who had so forfeited all right to be loved! *He* be a good man! He wished he could. He did not know that, when other means had failed to bring him back to himself and to his duty, God sent his little girl to lead him.

Old Hunter was pricked in his conscience, for there was a little left yet, and it kept pricking, until at length he went to a temperance man. "Sir," said he, "I want to sign the pledge, and turn over a new leaf." "God be praised," said the temperance man; it's the best news I've heard for a long while; but you must know, taking the pledge is not enough—it's only a beginning; you must get help from on high to keep it. Now you take your family and come round to our church, and we'll rally round you and help you on." So one good step leads to another.

To make a long story short, Old Hunter is a reformed man, sober and industrious. He is *Mr.* Hunter now, and goes to Sunday-school with his children every Lord's day.—*Child's Paper.*

What a Farmer's Boy Should Be.—Some one, we do not know who, says a farmer's boy should learn how to do the following things:

1. To dress himself, black his own shoes, cut his brother's hair, wind a watch, sew on a button, make a bed, and keep all his clothes in perfect order.
2. To harness a horse, grease a wagon, and drive a team.
3. To carve and to wait on the dinner-table.
4. To milk the cows, shear the sheep, and dress a veal or a mutton.
5. To reckon money, and keep accounts accurately, and according to good book-keeping rules.
6. To write a neat, appropriate, briefly expressed business letter, in a good hand, and fold to subscribe it properly.
7. To plow, sow grain and grass-seed, drive a mowing-machine, swing a scythe, build a stack and a load of hay.
8. To put up a package, build a fire, whitewash a wall, mend broken tools, and regulate a clock.

New Premiums.—We desire to call the attention of our friends to the following list of Premiums:

1. For *one* subscriber at sixty cents, we will send by return mail a copy of the *Rural Annual & Horticultural Directory* for 1860.

2. For *five* subscribers at sixty cents, we will send a copy of *Emerson & Flint's* new book—*The Manual of Agriculture*—or *Mrs. Hale's Modern Cookery Book, The Horse and his Diseases, Everybody's Lawyer*, or a package of Flower Seeds, pre-paid, by return mail.

3. For *six* subscribers at fifty cents each, ($3) we will send a package of Flower and Vegetable seeds, pre-paid, by return mail.

4. For *ten* subscribers at fifty cents, we will send a copy of the *Horse and his Diseases*, or *Everybody's Lawyer*. Price $1,25.

We have never before offered such liberal Premiums.

"If Gold was at Par, What would be the Price of Grain?"—If a gold dollar is worth $1.50, and a bushel of wheat in New York was worth $1.50 to send to Europe, it is clear that if the gold dollar should be worth only 100 cents the bushel of wheat, for the same purpose, would be worth only 100 cents. But suppose the bushel of wheat to be in a part of the West where the expense of sending it to New York was 50 cents. If the wheat is worth $1.50 in New York, it is worth $1.00 in the West; but let gold fall to par and wheat to $1.00, and the bushel of wheat in the West would be worth only 50 cents.

If we take corn and assume that it is worth in New York, when a gold dollar is worth $1.50, 75 cents per bush., it would be worth, with gold at par, 50 cents. Now supposing, as before, it costs 50 cents a bushel to send this corn to New York, the farmer in the West would get, at the present price of gold, 25 cents a bushel for this corn; but if gold should fall to par he would get *nothing!*

We think there is no mistake in these figures. The fact is, prices on a specie paying basis, are now, and have been for the past year, very low. We see this in Canada. There is no reason why wheat in Canada is not worth as much as it is with us, less the few cents it costs to bring it here, and yet it is 40 to 50 cents a bushel cheaper. It would be so with us if we paid in specie. The further you go West, the greater would be the difference in present prices and what the price would be if gold was at par; and we should soon reach a point where corn could not be sent to New York if it could be obtained for nothing.

Two years ago, at this time, we were offered shelled corn in Bloomington, Ill., for ten cents a bushel. In the English markets corn was at that time ten cents a bushel higher than it is at present. Freights are as high now as then, and but for the advance in gold not a bushel of corn could be sent at present prices from Central Illinois to Europe. These facts are worthy the consideration of every farmer—especially of those who think of emigrating to the West.

The Wool Market.—Wool is now worth 30 cents per pound more than it was a year ago. American fleece was then worth, in Boston, 45 cents; it is now worth 75 cents, and it has been worth 85 cents, but within a few weeks has declined 10 cents per pound.

We can not hazard an opinion as to prices the coming year. Our most experienced wool dealers seem to think that prices will be lower. Much will undoubtedly depend upon the price of gold. If it continues to fall, wool must fall with it. Even at the present high rates of exchange, coarse wool is largely imported from abroad, and if gold should decline wool would be brought into our markets in still greater quantity.

The last number of the London *Mark Lane Express* says:

"The great depression in the woolen trade on the continent, owing to the continuance of the present struggle in America, has had considerable influence upon the demand for all kinds of wool in this country. The public sales have gone off heavily, at a decline in the quotations of 1d. to 3d. (2c. to 6c.) per pound; and, by private contract, the rates have given way fully 1d. During the last two months very little wool, either English or foreign, has been taken for export purposes; and the result has been that more has been on offer than the home demand could take off. The arrivals from our colonies have been very large; and the next sales will, no doubt, be unusually large."

In the last report of the Liverpool wool market it is said: "Purchases are still being made for America of all kinds of low and middle class wool, also grays of all kinds up to 9d. (18 cents) per pound."

At a sale of wool in New York to-day (April 22), the average price obtained was 73 cents per pound. This is 15 cents per pound less than this same kind of wool would have brought some time since.

We think farmers have anticipated higher prices for the forthcoming clip than they will be able to realize; but with an easy money market, and a new crop of speculators added to those whose operations have been so successful the past year, wool will be likely to bring all it is worth.

Chinese Sugar Cane.—In reply to a correspondent who wishes to know where he can get a little genuine sorghum seed for trial, we would say that we have a few pounds on hand more than we need, and will send him, or any other of our readers, a package by mail free of charge.

In regard to cultivation, we would refer to an article in the last volume of the *Rural Annual and Horticultural Directory*. The main point, so far as growth is concerned, is to get the ground into as mellow a condition as possible. Do not plant until the soil is warm. Pour boiling water on the seed, and let it stand for two minutes. Then add cold water, and let the seed soak for thirty-six hours. If for sugar, plant in hills like corn; if for fodder, we would drill it in rows three and a half feet apart, and the plants six inches apart in the drills. In our experiments last season, plaster had such an astonishing effect on this crop that we would advise every one to try it. Sow it *with the seed* at the rate of two or three bushels per acre.

NOTES ON THE WEATHER FROM MARCH 15TH TO APRIL 16TH, 1863.—Nothing remarkable in the weather of the last half of March demands attention, unless it is the continued coldness of the month. The average of the last half was 31.3°, or 3.1° below the mean for twenty-six years; and of the month, was 28.3°, or 4.3° below the mean. The coldest morning was 12° on the 16th, but the coldest day was 19.3 on the 19th. The hottest at noon, was 44° on the 24th and 31st; and the hottest day was 43.3° on the 24th.

In the first half of March for twenty-seven years the mean has ranged from 19.3° in 1856 to 40.1° in 1854; and in the last half from 23.5° in 1853 to 41.4° in 1859; and the month for that number of years has had a mean range from 22° in 1853 to 39.8° in 1859. This cold of March had its only parallel here in 1859, when it was 39.3°, a half degree lower.

The water, fallen in the month, was 1.49° inches; below the mean considerably.

The flock of Cherry birds is still here, and flourishing in all their beauty.

In Newbern, N. C., on the 21st, peaches and plums, as well as roses, were in bloom. Not a flower here yet—not even a Crocus. Weather unpleasant; snow and rain, frost and mud, have alternated, and been made more uncomfortable by raw winds and thick clouds.

April began cold, 15° on the 1st, and so cold in the first half only twice in twenty-six years. The mean for this half is 37.9°, and for twenty-six years is 41°, and for the last seven years is 41.3°. In 1857 the mean of this half was 37.3°, only half a degree colder than this. The warmest noon was 75° on the 11th, which was the warmest day, 63° Rain below the average for this half.

Flowers of Crocus appeared about the 8th, and then the stamens of Soft Maple were fully developed on trees in warm locations, and on many of them by the 14th. The season has hardly become spring-like; the green grass just starting. On the 15th, at nine in the evening, rain began, and continued to midnight and after.

The Auroral Arch of Northern Light on the evening of the 9th was most magnificent. No one pretends to have seen its equal. It was splendid in the extreme from 8½ for an hour or more. The cotton-like band was entire from S. of E. to N. of W., somewhat waived at times as by a breath of air, so as not to be an arch of a great circle exactly. Its *pen-like* form at 9½ was striking from the side-like feathers of a quill. It seemed to be low in the atmosphere, and began to disappear at the east end, as the band discharged itself towards the west. It passed for more than twenty degrees north of the zenith southwards, to as many degrees, perhaps, south of the zenith. Though properly called Aurora Borealis, no light shows how it is made. It seems to be electrical.

OLD VOLUMES OF THE GENESEE FARMER.—A committee of the Rochester Athenæum and Mechanics Association in their report of last year, just published, say: "Your Committee think themselves singularly fortunate in being able to report that they have procured the earlier volumes of the *Genesee Farmer*, one of the pioneer agricultural papers of this county, complete sets of which are now very rare."

FARMS FOR SALE.—In the *Farmer* last month we expressed a willingness to assist such of our friends who wished to sell their farms to find purchasers. We have received several letters on the subject. Perhaps the best way to attain the object will be to allude, very briefly, to the farms, referring those wishing further information to the parties who wish to sell.

No. 1.—A farm of 80 acres in Aurora, Erie county, N. Y.; 40 acres good grain land, and the other half well adapted for pasture. A comfortable house; an old and rather poor barn; a good orchard of young apple trees. Only three-quarters of a mile from the postoffice, church, school, &c. Terms, $40 per acre—one-third to one-half down.

No. 2.—A farm of 125 acres in Blenheim, C. W., excellent land and buildings on it that cost $4,000; will be sold for $5,500—was formerly held at $8,000.

No. 3.—A farm of 396 acres, unimproved, six miles from Sagenaw, Mich. It is owned by a Canadian, and will be sold for $550 Canada money.

No. 4.—A farm of 60 acres, three miles from this city—excellent land and in a high state of cultivation. Price, $175 per acre.

No. 5.—A young man, who has just sold his farm in Niagara county, N. Y., for $55 per acre, wishes to purchase another, either in this section or the West. Can pay $3,500 down, but does not wish to run in debt too much. Would like a farm where he can raise peaches.

No. 6.—A farm of 200 acres, 1¼ miles from Hopkinstown, Iowa. It is a desirable location, less than 2 miles from the railroad station, with flouring mills, schools, churches, college, &c., in the immediate vicinity. 176 acres prairie and 26 acres prime timber land. A good house and barn, land well watered, &c. Wheat sells at $1.00 per bushel, oats 50 cents.

No. 7.—A farm of 200 acres, only two miles from Port Elgin, Bruce county, C. W. 31 acres cleared; a log house and frame barn; rolling land, well watered—a small stream running through the farm; excellent wheat land. Is worth $30 to $35 per acre, but on account of straightened circumstances will be sold for $25.

No. 8.—A fine grain and fruit farm, three-quarters of a mile from Charlotte and seven from Rochester. 63 acres. A comfortable house for a small family. Price, $80 per acre.

Those wishing to purchase any of the above farms can learn the name of the parties by writing to this office, and enclosing a stamp to prepay return postage

ONIONS.—The Army wants onions. At present prices no crop we grow will afford so much profit. They are quoted in New York at from $5.00 to $6.50 per barrel. Top onions for planting are very scarce and high—say $4.00 per bushel. It will be better to raise the crop from seed. There is no difficulty in raising onions. Sow in drills 12 to 15 inches apart, and thin out in the rows to 5 or 6 inches; keep down the weeds, and if the land is moderately rich a fine crop may be relied upon.

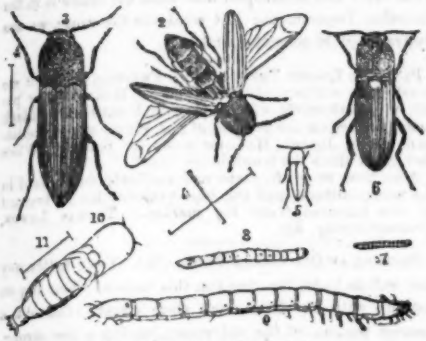
AN English cattle dealer of much experience, says he has always found that the best animals have the most massive heads, most capacious chests and the strongest spines.

Inquiries and Answers.

WIRE-WORMS.—I had my wheat crop destroyed last season so that it was not worth harvesting; and in plowing the ground this spring for corn I find the ground full of these small grubs. What are they? What is their cause and remedy, if any? Answer the above, and oblige a young farmer.—EDWARD LINNLY, *Toronto, Iowa.*

The grubs sent are the larvæ of a species of Click-beetles, and are generally termed Wire-worms. They are frequently very destructive to wheat. We take the following account of them from the *Rural Annual* for 1860:

According to HARRIS, upward of sixty varieties of these beetles are known in the New England States. Our engraving represents three species: 2, Agriotes lineatus, flying; 1, natural size; 8, larva; 9, do. magnified. 3, A. obscurus; 4, natural length; 5, 6, A. sputator; 7, larva; 10, pupa; 11, do. natural length. The perfect insects are popularly known under the name of "snapping bugs," from their possessing the faculty of throwing themselves up with a jerk when laid on their backs. They vary from one-third of an inch to one inch and a half in length, but are almost uniformly of a blackish or brown color, with yellowish legs. The larvæ or wire-worms have a long, slender, tough, cylindrical body; six feet; and a prop at the hinder end. Their length is about one inch, often more; color yellow, with a brown head. These larvæ feed upon the roots and underground stems of wheat, corn, the different pasture and hay grasses, and many vegetables. Some of them are wood-eaters, and live in the roots or trunks of old trees. It is believed that they remain in the larva state for several years before becoming pupæ. The pupæ are whitish, with two black spots over the eyes, and about one-fourth of an inch long. The worm is found in great numbers infesting old pastures and meadows. HIND says:



CLICK-BEETLES—WIRE-WORMS.

"Sometimes the wire-worm is found in such destructive abundance that it cuts off most crops as fast as they appear two or three inches above the surface of the ground. Under such circumstances, starving them out is perhaps the only remedy; a field kept perfectly free from vegetation can afford them no nourishment, and they must either perish or remove to another locality."

In England it is a common practice to bury slices of potatoes or turnips in the field, and employ women and children to take them up in the morning and kill the wire-worms, which will be found attached to the slices in great numbers. The insectivorous birds are among the greatest destroyers both of the wire-worms and beetles. The Hon. A. B. DICKINSON says he has "tried all sorts of remedies and only proved one remedy for these rascals to be good, and that is to break up the land and sow it with buckwheat."

BREWING ALE FOR FAMILY USE.—(A. C. G.) It is a difficult matter to brew ale unless you have the proper utensils as well as some experience. The process is something like this: The malt is crushed and placed in the "mash-tub" and covered with boiling water, being careful that every particle of malt is moistened. After it has stood an hour or two it is drawn off and more boiling water is poured on to the malt, and the process repeated until you have the amount of beer desired, and all the sugar is extracted from the malt. The liquid is then boiled for an hour or so, and is then poured into a shallow tub to cool. When about milk warm the yeast is added, and the beer soon commences to "work." It is then put into a barrel, and allowed to ferment for three or four days, the barrel being kept full so that the froth can work off. It is then bunged up close, and will be ready for use, if family beer, in two or three weeks, or in two months if ordinary ale. We know an English farmer in this vicinity who brews his own beer, but it is not an easy matter. Our climate is not favorable for beer-making or beer-drinking.

SEVENTEEN-YEAR LOCUST.—(R. W.) You will find an account of this insect in the *Rural Annual* for 1860, page 61. You are mistaken in supposing that the insects appear in all sections of the country the same year. There seems to be several distinct broods. One brood extends from New Haven, Conn., across the eastern counties of this State, through New Jersey and into Pennsylvania. Its last appearance was in 1860, and the time before in 1843. Another brood takes in Western New York, Western Pennsylvania and Eastern Ohio. This appeared in 1849, and will re-appear in 1866. Another brood extends from Western Pennsylvania, through the Valley of the Ohio and down the Mississippi to Louisiana. Its last appearance was in 1846, and it will consequently appear again this present year.

GLUEING BROKEN CHAIRS—(HOUSEKEEPER). Your trouble is probably owing to the glue having been heated too often. In warm weather glue soon ferments and becomes "tainted." This greatly weakens it. Freezing also spoils it. You had better clean out the glue pot and get a little fresh glue. Put in about as much as you expect to use, say an ounce, and soak it over night in half a pint of cold water. Then when you want to use it boil it for two hours. Put on the glue with a brush or a "swab," and tie the pieces together. You will, with a little experience, be able to mend all your chairs and other broken furniture.

CASTOR BEAN.—I write to obtain of you some information regarding the cultivation of the Castor bean—mode of cultivation, method of extracting the oil, &c. How many bushels can be raised per acre?—JOHN J. JOHNSON, *Wellsburg, Va.*

Will some one who has had experience answer the above?

CAN any of your correspondents give me a cure or preventive of the grub in sheep? My fine wool lambs are dying with it.—S. L. DUNHAM, *Venango county, Pa.*

What shall I do with the Bones?—Reading your different articles on bone-dust, bone-manure, superphosphate of lime, &c., has given me a light bone fever. I am now saving and collecting a store of them, and will try to put them into some shape to use on my orchard and vineyard. A correspondent of the *Country Gentleman* says they can be dissolved by boiling in ash ley. Will this, if readily done, give all their value, or will a proportion of the bones be changed so as to be of no value?—(*a*)—the dissolved bones to be used as a fluid manure. Can not this solution be dried by a free use of ashes mixed with it? Will the further mixture of ashes lessen in any way the *bone part* in value as a manure? (*b*) Is there any portable mill for crushing and grinding bones yet in market? (*c*) If not, how should I brake and grind them? (*d*)—John Pratt, *West Point, N. Y.*

(*a*) We think the ley will drive off a portion of the organic matter: but are not certain on this point.

(*b*) The ashes will not injure the "bone part" or phosphate of lime.

(*c*) We know of none.

(*d*) It is difficult to reduce them to bone-dust without a mill. If used under your trees and grape-vines they may be broken sufficiently with a hammer. We think this will be your best way to use them. If your land is well underdrained, the bones will gradually decompose, and in the end yield all their fertilizing properties to the trees and grape-vines.

Corn for Fodder.—What is the comparative value of corn sown for feeding stock, taking into consideration the cost of cultivation, yield per acre, &c.? Are there any recorded facts bearing on this point?—W. Hanford, Jr., *Etna, N. Y., April* 13, 1863.

Much has been written on this subject, but we cannot at the moment lay our hands on any data that would determine the question. One thing is certain, there are few if any crops that will yield more per acre, and none that cattle eat with greater avidity, unless it is the vetch or the Chinese sugar cane. Rich land, however, is required, and it is better to sow thick in drills that admit the use of the cultivator than to sow broadcast.

Cook's Sugar Evaporator.—I see an advertisement in the *Farmer*, of Cook's Sugar Evaporator. I want to know more about it. Please send me a pamphlet. I want to know what it will cost? how fast it will boil away sap? How much wood, and what length; and will it pay? We have some 500 trees, and make from 800 to 1000 lbs. of sugar a year. We are now boiling in kettles set in an arch, which keeps us boiling day and night. Has the Evaporator got to have some one by it to tend all the while? Our kettles we can leave an hour at a time to gather the sap, which makes it very handy.—H. Carrington, *Charlestown, Ohio.*

You can obtain the necessary information by addressing the manufacturers, Messrs. Blymyers, Bates & Day, Mansfield, Ohio.

Lice on Cattle.—I have a valuable young Devon cow that has become infested with some kind of vermin, which the usual remedies for lice will not kill. I notice in an old volume of the *Farmer* that Mercurial Ointment is very effectual for destroying them, but dangerous to use. What is the danger? and how should it be used?—W. T. Wilson, *Olivet, Pa., April* 2, 1863.

We suppose the danger, if there is any, is in using too much. If the common unguintum of the drug stores is mixed with two or three times its weight of lard, we should apprehend no danger whatever. Rub a little of it on the skin on the parts most affected.

What is the best recipe for making vinegar?—Thos. Sloan, *Kilsyth, C. W.*

Which is the Best Reaper and Mower.—I intend buying a combined reaper and mower the coming season. Can you or some of your experienced correspondents tell me which is the best? I would like one with a self-raker, unless it injures the working of the machine. Any information on this subject would much oblige—A Constant Reader.

There are so many good machines that it is not easy to determine which is best. Perhaps some of our readers, who are not interested, will give us their opinion.

Missing Numbers of the Farmer.—(E. G.) We will most cheerfully send, free of charge, any numbers your subscribers failed to receive. Mistakes will occur, in spite of all that is done to prevent them. Sometimes it is our fault, and sometimes, doubtless, the blame is in the Postoffice Department; but whatever the cause, we are always ready to correct mistakes.

Planting Locust Trees on the Prairies.—Permit me to ask your correspondents to tell us, through your paper, the best mode of planting and cultivating black locust timber on the prairies of the West—say in the latitude of St. Joseph, Mo.—for posts for fencing. When they grow alone the trunk is too short.

Also, how to graft, plant and cultivate an orchard in the same latitude, and the best varieties for an orchard of two hundred trees for market.—Thomas Lawis, *Greenup county, Ky.*

Pruning an Old Grape Vine.—(R.) Your better way now will be to let the vine run this season. You can do nothing with it. You must start afresh. Cut out a greater portion of the old canes, leaving a few strong, new shoots, and train these in the same way as you would a new vine.

Outside Cellars.—Will you please to give us a plan or plans, through the *Genesee Farmer*, for an outside cellar? Having water in the cellar under the house a greater part of the year, we have got to build an outside cellar of some kind and do not know how to do it. If some of the readers of the *Farmer* can favor us with a plan, it will very much oblige—G. G., *Girard, Pa., April* 4, 1863.

Cultivation of Grapes.—(Benj. Williams.) You will find an admirable treatise on the cultivation of grapes in the open air, from the pen of one of our most experienced grape growers, Josiah Salter, in the *Rural Annual and Horticultural Directory* for 1858.

Scours in Calves.—(T. C.) Give them some milk thickened with wheat flour. If the case is not an unusually severe one, a pint given twice a day will cure it. Be sure that the calves are well littered with clean straw.

Grubs on Cattle.—What is the cause and what the cure of grubs in the backs of cattle? My young cattle are very much infested and very poor in consequence.—J. E. Pierson.

Eds. Genesee Farmer.—Can you or your correspondents inform me of the whereabouts of the Brittany cows, said to have been imported?—H. S. Collins, *Collinsville, Conn.*

Apple Bark Louse.—(D. Byers.) For an account of this insect, remedies, &c., see *Rural Annual and Horticultural Directory* for 1860, page 59.

Tobacco—(J. R. Spencer). The best variety is the Connecticut Seed Leaf. You can get the seed from B. K. Bliss, Springfield, Mass.

What is the best medicine to take a film off a horse's eye?—W. Frazier, *Sugar Creek, Pa.*

Agricultural Items.

PREPARED EXPRESSLY FOR THE GENESEE FARMER.

M. Barral, in his comments on Liebig's accusation of England as an agricultural thief and vampire because it takes all the bones that can be procured on the continent, says that the waste of the sewerage of the cities is as great a means of exhausting the soil as allowing the phosphates to leave the country, and that no one should complain because the English have better understood the value of phosphates than any other people.

The *Journal d'Agriculture Pratique* has a translation by M. Villery of Liebig's last utterance, which he reads: "*The Agricultural Vampire.*" M. Villery thinks that the learned Professor is a little hasty in his conclusions, and that because one harvest fails in Germany it is not right to conclude that the whole country is exhausted.

The Illinois Central Railroad Company have placed at the disposal of the State Agricultural Society $500, to be awarded as premiums at the great implement trial at Decatur next fall. The premiums offered are: $250 for a "Ditcher" that will cut a ditch 9 ft. deep and 5 ft. wide; $250 for a "Corn-Cutter and Stacker."

At the last meeting of the New York Farmers' Club, Prof. Mapes stated that "six hundred pounds of superphosphate would produce as good results upon well-prepared land as eighty loads of manure." Good for Mapes!

England imports from foreign countries $25,000,000 worth of butter in a year. Of this amount Holland supplies the largest quantity—$10,000,000. The United States sends the second largest amount—$5,000,000.

W. S. Carpenter says the best remedy for worms and insects on plants is flour of sulphur. Half sulphur and half black hellibore powder is better. Dust it on the plants while the dew is on.

Catawba grape-vines are being sent from this country to Madeira for the purpose of testing their wine-making properties.

Last year 285,230,360 eggs were imported from foreign countries into Great Britain and Ireland.

Goats are the only animals that will eat tobacco, except the tobacco worm—and man.

The New York State Fair will be held at Utica, September 13-18.

The Markets.

OFFICE OF THE GENESEE FARMER,
ROCHESTER, N. Y., April 24, 1863.

The fluctuations in the price of Gold since our last report have been greater and more sudden than at any time since the commencement of the war. At one time during the present month it went down into the "thirties," and then up again as high as 158, and back again to 146. The price varies from hour to hour, not unfrequently going up or down 3 or 4 per cents in a day. These sudden changes have an injurious effect on business. They unsettle the price of every thing. Real purchasers buy sparingly, and the market is in the hands of speculators.

Butter and Cheese are lower, with a still downward tendency. Clover Seed is also lower. In other articles there has been but little change.

In Europe the young Wheat is reported as very promising, and prices tend downward.

Chicago, *April* 23.—Wheat, Red Winter, $1.21; rejected, $1.07@$1.10. Spring, No. 1. $1.20@$1.21; No 2, $1.00@$1.03; rejected, 85@88c. Oats, 59@60c. Rye, 75@80c. Barley, $1.00@$1.40. Beans, $1.75@$2.25. Timothy Seed, $1.50@1.75. Clover Seed, $5.00@5.25. Flax Seed, $2.50@$2.25. Hungarian Seed, $1.25@1.50 per bush. Potatoes, choice, 50@55c.; common, 35@40c. per bush.

Philadelphia, *April* 24.—White Wheat $1.75@$1.90; Red, $1.35@$1.70. Rye, $1.08@1.10. Corn, yellow, 89@92. Oats, 84c. Clover Seed $5.00@5.75 Timothy, $1.75@$2.00. Flax Seed in demand at $3.50@5.00.

New York Market, *April* 23.—White Wheat, $1.75@1.90; Red, $1.36@1.75. Barley, $1.45@1.58. Oats, 58@60c. Rye, $1.05@1.10. Corn, 90@91c. for mixed western. Canadian Peas, $1.12@1.15. White Beans, $2.80@3.40. Clover Seed, 8¾@9¾c. per lb. Butter dull; State, 18@23c; Western, 17@20c. Cheese, 11@14c per lb. Eggs, 16@18c Potatoes active. Mercers, $2.00@2.60; Peachblows, $1.50@1.75; Buckeyes, $1.50@1.75. Onions, $5.00@6.50 per brl.

Toronto, *April* 23.—Fall Wheat, 88@93c. Spring, active at 80@85c. Barley, $1.00. Rye, 60c. Oats, 43@45c. Peas, 55@60c. Potatoes, 55@65c. Timothy Seed, choice, $2.0 @2.40; inferior, $1.50@2.00 per bush. Clover Seed, $3.75@4.00. Tares or Vetches, 90c.@$1.12 per bush. Butter 14@15c.; fresh, 20@25c. Eggs 8@10c. per doz. Sheep, $4.50@6.00 each. Lambs, $2.00@3.00. Calves, $4.00@5.00 for good; $2.50@3.00 for inferior. Pelts, fresh, $1.75@2.25. Wool, 33c. per lb. Hay $20 per ton.

Rochester, *April* 24.—White Wheat, $1.50@1.65. Red, $1.30@$1.40. Corn, 75c. Barley, $1.20@$1.40. Oats, 65@75c. Rye, 75c. Clover Seed, $4.50@5.25. Timothy, $2.00@2.50. Butter, 18@20c. Beans, $2.00@3.00.

London, *April* 10.—American White Wheat $1.50@$1.62; Red, $1.41@$1.47; Spring Wheat, $1.32@1.38. Corn, 57c.@59c. Clover Seed in active demand: foreign red, $12.50@16.25 per cwt. American Cheese, $10@$18.50 per cwt.; Cheshire, $14@$18.75 per cwt. Butter, Irish, $22.5 @28.00 per cwt.

New York Cattle Market.—The first week in April Beef Cattle were higher than ever before. First-class and extra fat Cattle brought 12½ to 13c. per lb., and more would have been paid for Cattle of a higher quality had any been offered. Since then prices have receded a little, but they are still very high. Working Cattle are in demand, and a large number have been sold at from $125 to $150 per pair, and occasionally $180 is paid. Milch Cows are lower than they were three weeks ago, by $5 per head. Fair to good milkers, giving say 14 or 16 quarts per day, sell for $35 to $45 per head. A few fancy Cows sold at $60@70. Of Veal Calves the supply is not large and prices are good, the best selling at 7c. per lb., and occasionally an extra fat one brings 8c per lb. The average of the market is from 5 to 6¾c. per lb. "Bobs" are hard to sell at $1.00@1.50 each.

Sheep still bring enormous prices. Extra good lots sell for 10c. per lb. live weight, and none but the very poorest can be bought for less than 8½ to 9c. One flock of 162 well-fed Spanish Merino Sheep from Ohio sold last week at $10 per head, or 10c. per lb. live weight. A lot of 68 Long-wooled Canada Sheep brought $11 each, or 9½c. per lb. live weight. This is equal to 17c. per lb. dead weight! Pelts are lower, and it is thought that Sheep have reached the highest point.

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